PROCEEDINGS

OF THE

WORLD FORUM ON SYPHILIS AND OTHER TREPONEMATOSES

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

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PROCEEDINGS OF

WORLD FORUM ON SYPHILIS AND OTHER TREPONEMATOSES

Washington, D.C.
September 4–8, 1962

SPONSORS

American Social Health Association
American Venereal Disease Association
U.S. Department of Health, Education, and Welfare
Public Health Service

PARTICIPATING AGENCIES

World Health Organization
International Union Against the Venereal Diseases and the Treponematoses

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service
Communicable Disease Center
Venereal Disease Branch
Atlanta, Georgia, 30333

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Public Health Service Publication No. 997

U.S. GOVERNMENT PRINTING OFFICE, WASHINGTON, D.C.: 1964

For sale by the Superintendent of Documents, U.S. Government Printing Office
Washington, D.C., 20402 - Price $4.00

Foreword

The World Forum on Syphilis and Other Treponematoses was convened in the hope that information and ideas would be exchanged which might prove useful in the continuing struggle to eradicate the treponematoses, and to give form to some principles which have long cried out for recognition.

The 1,500 delegates from more than 50 nations included many of the world's authorities on the treponematoses. These proceedings record the knowledge, the concepts, the hopes, and the inspiration expressed by the Forum speakers.

In programming the Forum, the Organization and Planning Committee accepted the concept of eradication as a reasonable goal, and the belief that the social aspects of the treponematoses demand consideration alongside the medical and administrative aspects.

The Committee did not regret these two assumptions; nor was it anything but thrilled by their general acceptance, by the positive and constructive attitude of the sponsors and participants of the Forum, and by the quality of the participation.

The participants have struck a pattern for the program of the future. It is hoped that these Proceedings will serve as a valuable resource for a massive counter offensive against the treponemal diseases which shall extend to every continent.

William J. Brown, M.D.
Chairman
Organizing and Planning Committee

Contents

	Page
Foreword	iii
OPENING CEREMONIES	1
Address of Welcome *The Honorable Anthony J. Celebrezze, Secretary, U.S. Department of Health, Education, and Welfare*	3
Opening Address *Luther L. Terry, Surgeon General, Public Health Service*	4
PUBLIC HEALTH METHODS	9
Measure of Treponematoses Problem in the World *Thorstein Guthe*	11
The First Step Toward Eradication *William J. Brown*	21
Syphilis Eradication—A Plan for Action Now *Leona Baumgartner*	26
Epidemiology—The Key to Venereal Syphilis Control *Warren Tom Davis, Jr.*	33
Problems Posed by Population Mobility in Control of Syphilis *James F. Donohue*	38
Responsibility of Public Health in a Program for Syphilis Eradication *Malcolm H. Merrill*	45
Health Department Responsibilities to Medical Schools *Bruce P. Webster*	51
Health Department Responsibilities to Practicing Physicians *John W. Lentz*	54
Health Department Responsibilities to Hospital Staffs *William J. Dougherty*	58
Health Department Responsibilities to Schools of Nursing *Hilda A. Nivala*	61
Health Department Responsibilities to Private and Hospital Laboratories *E. J. Sunkes*	66
Responsibility of a Physician in a Program for Syphilis Eradication *Rudolph H. Kampmeier*	70
The Attitude of Private Physicians Toward Reporting Venereal Disease *I. Phillips Frohman*	80

Page

Legal Basis for Syphilis Control 85
Edward F. Tuerk

Role of the Public Health Physician in Syphilis Control 88
Otto Ravenholt

Role of the Public Health Laboratory Director in Syphilis Control 92
Elmer L. Shaffer

Role of the Public Health Nurse in Syphilis Control 95
Margaret G. Arnstein

Role of the Social Worker in Syphilis Control 100
Malcolm Tottie

Role of the Interviewer in Syphilis Control 104
Robert R. Swank

Role of the Investigator in Syphilis Control 108
William H. Hamlin

Role of the Nongovernmental Organization in Syphilis Control 112
T. Lefoy Richman

Role of Nongovernmental Agencies in Control of Venereal Diseases and Treponematoses .. 117
Giovanni A. Canaperia

International Cooperation 121
Guillermo E. Samamé

Effect of International Borders and Tourism on the Spread of Syphilis 125
Maurice R. Vinikoff

Effect of Quarantine Regulations on Venereal Disease Transmission 128
W. G. Simpson

Interrelationship of Syphilis Incidence and Maritime Activity 131
Eduard Hubert Hermans

Effects of Population Concentration on the Spread of Syphilis: Military 134
Adam J. Rapalski

Influence of the Armed Forces on the Propagation of Syphilis 141
Pierre Durel

International Exchange of Epidemiologic Information 145
S. E. Acres

Impact of Prostitution on Syphilis Control 149
Paul M. Kinsie

Effect of Urbanization on the Spread of Syphilis 153
Ralph R. Sachs

Program for the Eradication of Endemic Syphilis 157
Giuseppe Gasparini

Program for the Eradication of Yaws 167
Guillermo E. Samamé

Page

Program for the Eradication of Pinta (Spotted Sickness) in Mexico 171
Alfonso Elizondo Langagne

What to Do After Eradication of Treponematoses 178
Gérard A. Boyer

Must We Let It Happen Again? 182
Raymond A. Vonderlehr

MEDICAL SECTION 189

Where We Stand in Medical Research 191
Arthur C. Curtis

Future Research Needs 199
Herman Beerman

Therapy of Syphilis and Other Treponematoses 209
W. G. Simpson

Problems in Diagnosing Syphilis and Other Treponematoses Throughout the World 214
John C. Hume

Syphilis Resurgent 221
Ira Leo Schamberg

A Plea—Put Syphilis Back in Differential Diagnosis 227
Harry Pariser

Clinical Use of Treponemal Tests in Diagnosis of Syphilis 229
George W. Waring, Jr.

Laboratory Aspects of Treponemal Disease Diagnosis 232
Ad Harris

Panel: Development of Serologic Standards 237
Part I: *Genevieve W. Stout* 237
Part II: *Hans Aage Nielsen* 240
Part III: *R. H. Allen* 242

Fluorescent Treponemal Antibody Test 244
Wilbur E. Deacon

Recent Developments in Rapid Serologic Testing 249
Joseph Portnoy

Influence of Macroglobulins on the Specificity of Fluorescent Treponemal Antibody (FTA) Test for Syphilis 254
Earl H. Fife, Jr.

The Microhematocrit-Plasmacrit Method of Blood Donor Screening 258
John B. Alsever

Problem of the Biologic False Positive Reaction 262
Nicholas J. Fiumara

Nature and Control of False Positive Reactions in the Fluorescent Treponemal Antibody Test 269
Elizabeth F. Hunter

Page

False Positive Reactions in Treponemal Tests 273
Alfredo J. Julian

The Antigenic Structure of *Treponema Pallidum* 276
Giuseppe D'Alessandro

Immunological Investigations 282
Gerhard Siefert

Persistence of *Treponema Pallidum* in Late Syphilis in Rabbits and Humans, Notwithstanding Treatment 285
Pierre Collart

Efficacy of Penicillin in Treating Treponematoses 292
Resad Tahir Kinacigil

Treatment of Early Infectious Syphilis With Benzathine Penicillin G 296
Leslie Nicholas

Chloromycetin—A Suggested Alternate for Penicillin in Case of Penicillin Allergy 302
Pagadala N. Rangiah

Treatment of Early Syphilis and Acute Gonorrhea in Males With Synnematin B 306
Benjamin Schwimmer

Treatment of Neural Deafness With Prednisone 311
Richard D. Hahn

Influence of Penicillin Allergic Reactions on Venereal Disease Control Programmes 317
R. R. Willcox

Hypersensitivity to Penicillenic Acid Derivatives in Humans With Penicillin Allergy 328
Jack Shapiro

Biphasic Nature of the Toxic Reaction to Penicillin in Guinea Pigs 333
David H. Hollander

Further Studies on the Survival of Virulent *Treponema Pallidum* in Synthetic Media 335
George Kimm

Epidemiologic Treatment of Contacts to Infectious Syphilis 340
M. Brittain Moore, Jr.

Development of the Concept of Mass Treatment of Syphilis With Penicillin 343
R. C. Arnold

Control of Syphilis as Influenced by the Epidemiology and Treatment of Gonorrhea 349
Nobel W. Guthrie

Intraurethral Chancres 352
Lee W. Elgin

BEHAVIORAL SCIENCE 355

Attitudes Toward and Public Images of Venereal Disease 357
Claude Scott Nicol

Role of Behavioral Science in Venereal Disease Programs: Retrospect and Prospect 364
Charles Winick

Page

The Poor Predictor of Probabilities: A Psychiatrist Looks at Contagion and Cure 373
Klaus W. Berblinger

Social Patterns and Venereal Diseases 380
Mauricio Knobel

Social Stratification and Venereal Disease 388
Uriel G. Foa

Cross-Cultural Contact and Venereal Disease 393
Raymond Forer

Changes in the Social Climate Toward Venereal Disease in the Last Quarter Century 399
Hugo G. Beigel

Promiscuity and Venereal Disease 407
Julius Buchwald

Significance to the Person of His Attitudes Toward Venereal Disease 412
Herbert A. Bloch

Latent Factors in Attitudes Toward Venereal Disease 419
Leonora Bron

Wonder Drugs, Fear of Venereal Disease, Infection, and Sexual Contact 424
John H. Gagnon

Male Homosexual Life Styles and Venereal Disease 431
Evelyn Hooker

Prostitutes' and Their Clients' Perception of Venereal Disease 438
T. C. N. Gibbens

Sexual Deviation and Venereal Disease 444
Ronald E. Stokes

Deterrent Effects of Venereal Disease in Subsequent Sexual Behavior 448
John Beeston

Some Observations on Recent Trends in the Incidence of Syphilis 454
Jacob Goldstein

Standards and Values of Youth 459
Celia S. Deschin

How People Get Information About Venereal Disease 465
Thomas Adeoye Lambo

Panel: Education About Venereal Disease in the Schools 470
Part I: *Elizabeth S. Force* 470
Part II: *Carl F. Hansen* 473
Part III: *Rev. John C. Knott* 478
Part IV: *M. Norman Orgel* 481
Part V: *William F. Schwartz* 484

Venereal Diseases as a Subject of Medical Sociology 488
John A. Morsell

674-366°—64——2

Page

Our Armory Against Venereal Disease 493
Gamil Beirouty

An Industrial Psychiatrist Looks at Venereal Disease 497
John MacIver

A Behavioral Science Action Program in a Venereal Disease Clinic 500
Marie Angell

Non-Medical Factors Influencing Reactions to Syphilis 504
Robert O. Carlson

ADDENDUM 509

Address 511
The Honorable John E. Fogarty, United States Representative, Rhode Island

List of Participants 515

Opening Ceremonies

Address of Welcome

THE HONORABLE ANTHONY J. CELEBREZZE

Secretary, U.S. Department of Health, Education, and Welfare

This is the first occasion I have had, since recently assuming my new responsibilities as Secretary of HEW, to greet a distinguished international technical gathering.

I consider it a special privilege to participate in the opening of this World Forum because of the great potential achievement it represents.

May I extend to the delegates of the nations represented here a most warm welcome, on behalf of the President of the United States and the Department of Health, Education, and Welfare.

I am sure that you know of President Kennedy's strong belief in the limitless possibilities for progress, when nations throughout the world join hands in common purpose. In the field of health, the spirit and practice of working together across national boundaries is well established. The record of international cooperation in health matters is one of solid accomplishment. We can anticipate that the joint project which brings you together will bring greater advances, both for the health of mankind and for understanding among nations and peoples.

The advances of medical research and public health in recent years have given the people of the world better health than has ever existed.

But in every achievement there is a challenge. We have vast quantities of health and medical knowledge not yet being put to full use. Millions of people in our own country, and millions more around the world, are still not benefitting fully from the best that medical science can offer.

Advances in research must be accompanied by progress in practical application of the fruits of research to human needs.

Greater emphasis must be placed on making the findings of research available to all who need medical care, when and where they need it.

Your goal and mine is to serve people. There is no area of greater potential service to people than that of fighting disease and promoting health.

You are to be commended for your dedication to this purpose.

May I wish for you a most successful conference and assure you that Dr. Terry and myself wish to do all we can to be of assistance.

We are grateful for your presence and are confident that this World Forum will mark another major forward step in mankind's striving toward better health and a better world.

Opening Address

LUTHER L. TERRY, M.D.

ABSTRACT

As a result of rapid and effective penicillin treatment of syphilis, the rate of incidence of the disease dropped sharply. Feeling that the problem was overcome, the public health authorities relaxed their efforts, whereupon the rate again rose.

Disease control demands constant vigilance and a refusal to be lulled into inertia by statistics that seem on the surface reassuring and comforting.

The ascending curve of V.D. incidence reflects particularly a large number of young people.

Research is an important factor in any control program.

Half of all reported V.D. cases in the U.S. are treated by private physicians.

In the U.S. the Public Health Service does not arbitrarily set policies for community health and require local physicians or health authorities to comply. The system is decentralized. Close coordination of efforts is not always easy.

Nine countries have a lower infant mortality rate than the U.S.

The recently enacted Community Health Services and Facilities Act provides funds to States to build up health services for the chronically ill and to develop new methods of providing health services.

V.D. control should be planned, not as an isolated program, but within the total health context.

International health symposia are of great value. Also, the U.S. has excellent disease intelligence exchanges with its neighbors and with some West European countries. A system of international exchange of information would be desirable.

In the U.S. we have learned that we "cannot afford to follow a breakthrough in science with a breakdown in delivery."

The job now as regards V.D. is a "mop-up operation."

SOMMAIRE

Par suite du traitement rapide et efficace de la syphilis au moyen de la pénicilline, le taux d'incidence de la maladie a baissé très considérablement. Estimant que le problème était resolu, les autorités de la santé publique ont relâché leurs efforts, et par conséquent le taux est à nouveau remonté.

Le contrôle d'une maladie exige une vigilance constante et le refus de se laisser entraîner vers l'inertie par des statistiques qui à la surface paraissent rassurantes et réconfortantes.

La courbe ascendante de l'incidence des maladies vénériennes reflète particulièrement un nombre considérable de jeunes.

La recherche est un facteur important de tout programme de contrôle.

La moitié de tous les cas de maladies vénériennes enregistrés aux E.U. sont traités par des médecins privés.

Aux E.U. le Service de la santé publique ne formule pas arbitrairement des directives visant la santé à l'echelle de la communauté en exigeant qu'elles soient appliquées par les médecins et les services sanitaires locaux. Ici le système est decentralisé. La coordination étroite des efforts n'est pas toujours facile à réaliser.

Neuf pays au monde ont un taux de mortalité infantile inférieur à celui des E.U.

La Loi récemment promulguée ayant trait aux services et aménagements pour la santé publique locale permet l'octroi aux Etats de crédits afin de développer les services de la santé pour les malades chroniques et d'inaugurer de nouvelles méthodes de procurer des services sanitaires.

Le contrôle des maladies vénériennes devrait être envisagé, non pas en tant que programme isolé, mais dans le contexte général de la situation sanitaire.

Les conférences internationales de la santé ont une grande utilité. D'autre part, les E.U. jouissent d'excellents échanges d'informations sur les maladies avec ses voisins ainsi qu'avec certains pays d'Europe occidentale, notamment la France. Un système d'échanges internationaux d'informations serait souhaitable.

Aux E.U. nous avons appris que nous "ne pouvons pas tolérer qu'un progrès scientifique soit suivi d'une rétrogression dans l'application.

La tâche qui nous incombe actuellement dans le domaine des maladies vénériennes est une "opération de liquidation."

RESUMEN

Como resultado del rápido y efectivo tratamiento de penicilina para la sífilis, el grado de incidencia de la enfermedad ha bajado notablemente. Pensando que el problema fue vencido, las autoridades de salud pública disminuyeron sus esfuerzos, así que el grado subió nuevamente.

El control de una enfermedad requiere vigilancia constante y no dejarse arrastrar hacia la inercia por estadísticas que a la ligera puedan aparecer alentadoras y confortantes.

La curva ascendente de incidencia de enfermedad venérea refleja particularmente un gran número de gente joven.

La investigación es un factor importante en cualquier programa de control.

La mitad de todos los casos de enfermedades venéreas

informados en los E.U. son tratados por médicos particulares.

En los E.U. el Servicio de Salud Pública no fija una política arbitraria para la salud de la comunidad y no requiere que sea observada por médicos locales o autoridades de salud. El sistema está descentralizado. Coordinación cerrada de esfuerzos no es siempre fácil.

Nueve países tienen una proporción de muerte de niños más baja que los E.U.

La recién establecida Ley de Servicios de Salud y Facilidades para la Comunidad provee fondos a los estados para aumentar los servicios de salud para los enfermos crónicos y para desarrollar nuevos métodos de proveer servicios de salud.

El control de la enfermedades venéreas debe ser planeado, no como un programa aislado sino como parte del contexto total de la salud.

Una colección de artículos internacionales de salud es de gran valor. Además, los E.U. tienen excelentes intercambios de inteligencia sobre las enfermedades con sus vecinos y con algunos países de Europa Occidental. Un sistema de intercambio internacional de información sería ventajoso.

En los E.U. hemos aprendido que "no podemos darnos el lujo de adelantar en la ciencia para luego fracasar en el intento de llevarla a cabo."

La tarea ahora en cuanto a enfermedades venéreas es "acabar con ellas."

IT IS SIGNIFICANT that key health officials of more than 50 nations are gathered here this week to plan how to eradicate a disease which most of us thought we had completely licked.

Results of Complacency

Most of us know now what happened. The trouble was that we couldn't see it happening in time. In the United States, we became overconfident. The remarkable effectiveness of penicillin in the treatment of treponemal diseases had been demonstrated during World War II. We had set up Rapid Treatment Centers as a control apparatus and these were so successful that by 1953 the rate for primary and secondary syphilis had been brought down to 6.2 per hundred thousand population, one-tenth of the rate for 1943.

We had apparently decided, subconsciously, that our job was done. We closed the Rapid Treatment Centers and imagined that the problem had been solved. Federal appropriations for venereal disease control dropped from $9.8 million in 1953 to $3 million two years later. We assumed, overconfidently, that the State and local government programs, with only one-third as much Federal assistance, could further drive the V.D. rate down to some irreducible minimum.

Events did not occur quite that way. As soon as we began to relax our efforts, the incidence of syphilis began to rise. Last year, we had 10.4 cases of primary and secondary syphilis per 100,000 population, as against an all-time low of 3.8 five years earlier.

This was a rude awakening for many of us. When I became Surgeon General, I was determined to launch a renewed attack on venereal disease. As a first step, I appointed a Task Force to look into the matter. The report of that group has been printed and contains recommendations to me which I believe are essential in order to eradicate venereal disease in this country. Dr. Leona Baumgartner, who chaired the Task Force, will report on their investigation and conclusions later. I sincerely hope that some of the recommendations will be workable in other countries where public and health agencies can work together to stamp out syphilis and related venereal problems.

Our experience here in the United States sounds a warning to me as Surgeon General—a warning against the dangers of complacency of any kind in the control or eradication of disease.

What other once troublesome chronic or communicable diseases do we now think we have totally in hand? Are we getting smug about tuberculosis? Will we become overconfident about polio?

Need for Vigilance

Recently I was told of a woman, an arrested tuberculosis patient, whose susceptibility to chest infections led to an acute bronchitis and then bronchial pneumonia. The condition was brought under control by a course of antibiotics and bed rest at home. When this woman mentioned her illness to a friend, who happened to be a registered nurse, the friend raised a cynical eyebrow and said, "Pneumonia? What's that?" Too often, I fear, we tend to write off those health problems which have been dramatically simplified by "miracle drugs" and new treatment methods. We are eager to move on to new and even more dramatic conquests, sometimes overlooking the fundamental truth that good health, whether of a nation or of individuals, has its price. It must be bought by constant vigilance.

And vigilance involves a refusal to be lulled into inertia by statistics which seem on the surface reassuring and comforting.

Dr. Terry is Surgeon General, Public Health Service, U.S. Department of Health, Education, and Welfare, Washington, D.C.

For example, two cases of congenital syphilis per hundred thousand population per year sounds innocuous. Yet, projected to the total U.S. population, this seemingly harmless number refers to over 4,000 individuals. The death toll of syphilis—2 adult deaths per 100,000 people, and 0.5 infant deaths per 100,000 live births—may sound similarly small. But these represent many hundreds of needless deaths, and every one of them reproaches us. We stand reproved also for last year's total of over 24,000 resident patients in mental hospitals for syphilitic psychoses.

Finally, it is tragic that the ascending curve of V.D. incidence reflects such large numbers of young people. We cannot predict, at this stage, how many juveniles will in later years suffer blindness or brain damage. But we know that the threat is there. We know that they must live with the ever-present fear of crippling, chronic illness.

This waste of human resources must be stopped. Without question, it is far more extravagant to our economy to permit infectious syphilis to continue to exact its price than to finance a program which will bring the disease under control.

V.D. Eradication Measures

I intend, therefore, that vigorous and effective venereal disease eradication measures shall be built into the very heart of American community health services.

Research, like that in our excellent Atlanta V.D. Research Laboratory, is an important factor in the control program. But it is imperative also that all of us—in State and local health departments and in the ranks of private medicine—work closely together to apply what is already known.

Epidemiology is not limited to those of us in public health practice. Private physicians in this country treat half of all reported V.D. cases. For this reason, they form an essential part of the epidemiological team. They are vital to the success of any effort to improve case finding and contact followup. We in public health should devise and encourage ways of working effectively with them without in any way threatening to violate the physician's confidential relationship with those he treats.

I am sure that everyone here, including our overseas delegates, is aware that in the United States the Public Health Service does not arbitrarily set policies for community health and require local physicians or local health authorities to comply. Our decentralized system of government gives autonomy to the States which in turn delegate certain health responsibilities to local authorities or groups.

It has not always been easy to achieve close coordination between local medical organizations and the official health agencies. But important strides are being made. In Nevada, for example, the Washoe County Medical Society was so thoroughly convinced of the value of nursing care of the sick at home that it sponsored a visiting nurse program to be provided by staff nurses of the Reno-Washoe County Health Department. The Society also sent out publicity to all the physicians in the county informing them of the ways home care could help the aged and chronically ill and others needing prescribed medication or treatment in the home.

Several other counties have become interested as a result of Washoe's success and are looking into ways of combining the forces of the public health agency and the local medical organization. I would hope that this kind of cooperative arrangement might be worked out on the V.D. eradication front, as well as in the development of additional home nursing and other health services. For we are concerned—not only with the eradication of eradicable disease, but also with innumerable stubborn health hazards which continually confront us.

Persistent Health Problems

Two such problems have plagued us for at least the past generation. These are—how to provide good care for our chronically ill and aged, and how to provide restorative services to those already disabled.

We have not been able to attack the problems of long term illness and care of the aging as directly as we wanted to. They are administrative as well as medical. Often, the administrative machinery has not caught up with the imagination and vision of the scientists who are devising new ways to extend man's capacity for satisfactory living.

In fact, medicine's great success in the management of acute illness has established an entirely new set of problems—in this country, as around the world. We have prolonged life expectancy from 49 years in 1906 to 70 years today. And with this lengthening of life, all of the chronic illnesses of older age must be dealt with. We lack specific answers for the cure of heart and circulatory diseases. We are working on it but have not yet solved the problem

of arthritis. We have not conquered multiple sclerosis or cerebral palsy. Our community health services must cope with these chronic diseases by reaching out in two directions beyond mere therapy—toward prevention of disability and toward restoration of function.

On the other side of the age scale, we need periodically to shock ourselves by recalling that American families lose more than 200,000 infants *in utero* and in infancy each year. An educated guess places unreported spontaneous and illegal abortions at about one million annually. Cystic fibrosis alone claims 1,500 to 2,000 children a year—more deaths than those caused by polio before the Salk vaccine.

Furthermore, there are nearly fifteen hundred maternal deaths reported annually—half of which could be prevented.

Nine countries have a lower infant mortality than the United States. But, no matter how low our mortality rate might be, we may never ignore the import of unnecessary deaths.

What is equally important, we must face up to the fact that disease is, first of all, a local issue. Illness is identified, treated, and controlled on the home front. The overall social, economic, and physical health and welfare of a Nation is made up of many parts. Each piece which fits into the national picture is first a community responsibility. Health has to be protected and sustained in the towns and cities and rural areas where people live and work.

We hope, therefore, that local communities will be increasingly eager to adopt bold new ideas and to acquire the know-how necessary to implement them.

Community Health Services and Facilities Act

We now have, I am glad to say, a new program of grants designed specifically to improve community health.

The Community Health Services and Facilities Act, passed in September last year, enables us to grant funds to States, especially to build up health services for the chronically ill. The same law authorizes grants to communities to develop, demonstrate, or study new methods of providing health services. Many of these, we hope, will benefit our aging population.

Grants to communities will enable them to test out various types of coordinated home care programs. The law also authorizes increased funds for nursing home construction and for experimental research in the design and operation of hospitals. It provides increased Federal aid in the construction of health research facilities. Another provision liberalizes the terms for obtaining Federal aid for the construction of badly needed rehabilitation centers.

One of the most comprehensive projects approved to date under this new program is a $1.2 million, four-year study jointly undertaken by the American Public Health Association and the National Health Council, designed to appraise the nation's community health services, needs and resources. It is being financed in part by a $400,000 grant from the Public Health Service, with other support being provided by private foundations.

In brief, two types of investigations will be conducted. The first will get underway in about 20 selected communities, employing self-survey techniques. The second will be oriented to the country as a whole and will utilize 10 task forces scattered throughout the Nation. Results are expected to be available within 24 months. They will then be reported to the public and health leadership through a national conference. A final step will be to promote through all acceptable channels and information media the recommendations of the studies and the plans of action that may evolve from them.

I feel confident that this study will have equally far reaching significance as the Haven Emerson study of 1945, *Local Health Units for the Nation.* The findings should profoundly influence community health planning everywhere for many years to come.

About 50 other projects have been approved under the Community Health Services and Facilities Act during the first six months of 1962. This is a modest but, to us, hopeful beginning. For each project in some way proposes to create new health services or to demonstrate ways to improve them.

We hope, especially, to be able to communicate the opportunities implicit in the new law more effectively in the months ahead. If we can dramatize the potential value of this legislation in revitalizing local health programs, we shall, I am sure, stimulate creativity, imagination, ingenuity, and resourcefulness among planners at the local level.

I have talked at some length about general hazards to community health and well-being because I think it is vitally important that venereal disease control be planned, not as an isolated program, but rather in the total health context. I am sure this is true in other countries as in the United States.

The advantages work both ways. Newer community programs have much to learn from

the techniques developed and brought to a high order of efficiency by workers in V.D. control. And you in the V.D. field also have much to gain—for example, community self-studies of the type planned under our new legislation could have detected the slowly rising incidence of infectious syphilis long before it was reflected in the national statistics.

Certainly, I would want to encourage the delegates from abroad to take the long look at health, to see their own V.D. situation as one of many equally challenging health problems which, when tackled as a whole, can bring us to the threshold of tomorrow's public health practices.

International Cooperation

In the past 10 to 12 years, this country has learned much from all of you by participating in periodic international symposia on treponematoses. We have been impressed by the work of the WHO, in which we have all shared. Especially dramatic are the results achieved with the non-venereal infections such as yaws and pinta.

These conferences bring all nations closer together in our thinking. We all benefit by sharing each other's research and management knowledge. We are particularly helped by an exchange of information on the innumerable control problems posed by population mobility.

Many of you know that in the Western Hemisphere we are using—and promoting—a Spanish-English reporting form, developed with the assistance of the Pan American Health Organization. This has been extremely effective in our contacts with countries in Central and South America and the isthmus area.

Two years ago we learned how alert were Peru, Argentina, and Brazil to evidence of V.D. increases. Even then, those countries were revitalizing their programs. These are highly competent plans, developed with serious intent to eradicate.

The United States is also especially fortunate to have excellent disease intelligence exchanges with our immediate neighbors, Canada and Mexico, as well as with West Germany, France, and other western European nations.

We know that scientific facts on venereal disease can be translated quickly into action. Therefore, I would enthusiastically advocate a system of international interchange of information. I note that one of the delegates from Canada will discuss this in a special paper during the Forum program. Should this Forum propose such action, I would heartily endorse it.

Here in the United States we have learned the hard lesson that we cannot afford to follow a breakthrough in science with a breakdown in delivery. We have the tools and the techniques. We must not fail at the point of application.

What we all face now, to eradicate V.D., is an effective mop-up operation. We in the United States can share with you our methods for interviewing and contact tracing. And we look to you to tell us, in turn, what *you* are doing. We look to you to tell us how we can help in an internationally renewed attack on this stubborn menace to world health and productivity.

The advances of one nation in the eradication of an internationally communicable disease may be noteworthy. But they are futile if, unlike the disease, they cannot be communicated.

We cannot claim that we have made true progress until knowledge and its benefits circle the globe. In no other way can we hope to offer freedom from disease and restored dignity to millions of human beings, not just at home but all around the world.

Public Health Methods

Measure of Treponematoses Problem in the World

THORSTEIN GUTHE, M.D.

ABSTRACT

In contrast to the venereal syphilis of adults, non-venereally transmitted yaws, pinta and "bejel" make up the treponematoses of childhood. The latter are prevalent in rural populations of developing countries, are endemic in character and have similar epidemiological features.

The World Health Organization (WHO) has a central coordinating role in mass campaigns against endemic treponematoses. Technical and other assistance has been provided in 45 countries since 1948. These mass campaigns are based on the use of mobile field units composed of medical personnel trained for examination, classification, and treatment of rural populations.

Long-acting penicillin (PAM or benzathine penicillin) is used. It is capable of curing active cases and preventing infectious relapses. Extensive contact treatment is used on epidemiological indication. More than a hundred million people have been treated in health campaigns. Initial results are encouraging, but the ultimate outlook for complete eradication is reserved.

The World Health Organization (WHO) has undertaken a global study of incidence trends in venereal syphilis. One hundred and six countries and areas participated in the study, which covered the period 1950–1960. In 1954–1957 there was a sustained rising incidence trend of new cases of early syphilis in all regions of the world.

On the other hand there has been a sustained decline in congenital syphilis in the decade 1950–1960.

SOMMAIRE

Contrairement à la syphilis vénérienne des adultes, les tréponématoses infantiles se composent du pian, de la pinta et du "béjel." Elles dominent parmi les populations rurales des pays en voie de développement, elles ont un caractère endémique et des traits épidémiologiques analogues.

L'OMS joue le rôle de centre de coordination dans les campagnes d'ensemble contre les tréponématoses endémiques. Quarante cinq pays ont reçu de l'aide, technique et autre depuis 1948. Ces campagnes d'ensemble se basent sur l'emploi d'unités de campagne mobiles se composant d'un personnel médical formé spécialement pour l'examen, la classification et le traitement des populations rurales.

On emploie la pénicilline à effet prolongé (PAM ou pénicilline benzathine). Elle peut guérir les cas actifs et prévenir les récidives d'infection. Les chiffres des tableaux qui montrent le nombre élevé de cas d'infection relevés au cours d'enquêtes renouvelées prouvent la nécessité d'une surveillance à longue échéance.

L'Organisation Mondiale de la Santé a entrepris une étude globale des tendances d'incidence de la syphilis. Cent-six pays ou régions ont participé à cette étude couvrant la période 1950–1960. De 1954 à 1957, il y a eu une tendance continue à une élévation de la fréquence dans toutes les régions du monde.

D'autre part, la syphilis congénitale a montré un déclin continu pendant la décade 1950–1960.

RESUMEN

En contraste con la sífilis venérea en los adultos, la frambuesia, pinta y "bejel" no transmitidas por vias venéreas ocasionan la treponematosis en la infancia. Estos últimos prevalecen en las poblaciones rurales de paises que se están desarrollando, y son de carácter endémico y tienen rasgos similares epidemológicos.

La OMS tiene un papel central de coordinar en las campañas en masa contra la treponematosis endémica. Asistencia técnica y de otro tipo han sido proporcianadas en 45 paises desde 1948. Estas campañas en masa están basadas en el uso de unidades móviles compuestas de personal médico entrenado para el examen, clasificación, y tratamiento de poblaciones rurales.

Se usa la penicilina de acción de larga duración (PAM o penicilina benzantina), y es capaz de curar casos activos y de evitar recaídas infecciosas. Extenso tratamiento de los contactos es usado bajo indicación epidemiológica. Mas de cien millones de personas han sido tratados en las campañas de salud. Los resultados iniciales son buenos pero la vista final para la erradicación completa esta en veremos.

La Organización Mundial de la Salud ha realizado un estudio global de las tendencias a incidencia en la sífilis. Unos ciento seis paises y arcas participaron en el estudio durante los años de 1950–1960. De 1954 a 1957 hubo una tendencia contante a aumentar el número de casos en todas las regiones del mundo.

Por otro lado, ha habido una disminución constante en la sífilis congénita en la decada de 1950–1960.

IN CONTRAST to venereal syphilis which is acquired by adults, non-venereally transmitted yaws, pinta, and non-venereal prepubescent syphilis—the so-called "endemic syphilis" or "bejel"—make up the treponematoses of childhood. As a group, the treponematoses represent one of the world's larger communicable disease problems. While venereal syphilis is sporadic in all countries and regions of the world, the treponematoses of childhood are prevalent in rural populations of developing countries, are endemic in character and have related epidemiological features. Figure 1 shows the geographical distribution of the treponematoses from a global viewpoint. In Table 1 a measure of the distribution, extent and importance of the treponematoses is provided. In Table 2, the treponematoses features are compared in regard to transmission, nature and extent of lesions, the reservoir of infection, and some other factors of epidemiological interest.

Endemic Treponematoses

It was estimated that, 15 years ago, some 400,000,000 people lived at risk of infection in rural developing countries, with more than 200,000,000 actually being infected. About half this reservoir has now been reduced to manageable proportions through large-scale campaigns.

Technical and other assistance by the World Health Organization (WHO) in mass campaigns against yaws, pinta and prepubescent syphilis has been provided in 45 countries during 1950–1960, as shown in Table 3. The more than 284,000,000 examinations undertaken include initial surveys and resurveys, represent approximately 126,000,000 people, and illustrate the scope and extent of the global programme in which WHO has a central co-ordinating role (*1*). Seroreactivity has regressed and only a small percentage of true seroreactors is now encountered among the new generation of children, as shown in WHO studies, for example, in Thailand, the Philippines, Western Pacific islands, and certain countries in Africa.

Mass campaigns against the endemic treponematoses are based on the use of mobile field units composed of medical auxiliary personnel trained for systematic examination, classification and treatment of rural populations. In yaws, where extensive campaigns have been under way since 1948, the grouping of lesions is done on the basis of the standard international classification developed by WHO (*2*). The use of clinical indices as a measure of the changing

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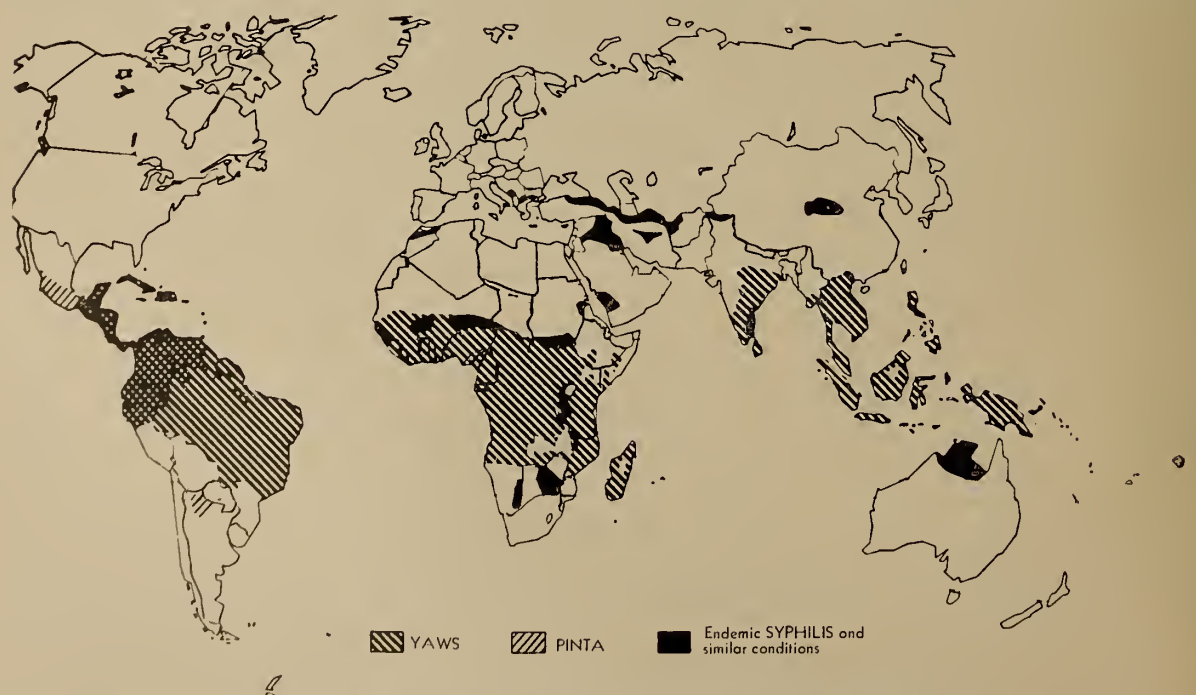

Figure 1. Geographical distribution of the non-venereal treponematoses

Table 1. A measure of the distribution, extent and importance of endemic treponematoses

	Venereal syphilis: Adults	"Endemic" syphilis ("bejel"): Children	Yaws: Children	Pinta: Children
Distribution	Sporadic; world-wide; all climates; all socio-economic groups; urban; seaports; migration; traffic arteries.	Focal; familial; endemic; under-developed, isolated communities; all regions except the Americas; prevalent in Mediterranean belt, Africa, Australia.	Endemic; rural; tropical humid belt; all regions except Europe; disease "at the end of the road"; not above 6,000 feet.	Focal; endemic; rural; only in the Americas; in semi-arid, hot and humid tropical areas; all altitudes.
Extent of problem following Second World War.	Post-war peak 1946–1948 in most countries; wide variations between regions and countries; annual incidence 15–500 new cases per 100,000 over 15 years of age; estimated total number of cases in world in 1948: 20 million.	Varying prevalence in existing foci; sometimes 5 to 10% infectious lesions; 20–50% seroreactivity.	Estimated 50 million active and 150 million latent cases; 5–10% infectious lesions; seroreactivity up to 60–70% in rural populations; frequent infectious relapses from latency.	Varying prevalence in existing foci; seroreactivity high.
Social and economic importance.	Reduced manpower; absenteeism; incapacitation; cost of medical care; physical and mental invalidism.	Reduced manpower in adolescents and young age-groups; incapacitation; late invalidism; cost of medical care.	Invaliding sequelae in 10% of infected; ankylosis, destructive lesions; reduced manpower pool in developing countries; social and economic burden on community; cost of medical care.	Cosmetic aspect, also mental health repercussions from pigmentation and dyspigmentation; cost of medical care.

problem sufficed in the early years of endemic treponematoses campaigns. Then, active clinical lesions were encountered in 10 to 20 per cent of the population, which corresponds to approximately 50 to 60 per cent seroreactors. Apart from methodological studies in pilot areas for investigative purposes, serological sampling problems arise in mass campaigns only after several years of work in the later stages of the campaigns, when solely isolated clinical lesions are found. The assessment of false lipoidal antigen reactors due to intervening non-treponemal conditions then becomes an important problem in the evaluation of campaigns, and the specific fluorescent antibody (FTA) or treponemal immobilization (TPI) technique must be brought into play.

Only long-acting penicillin (PAM or benzathine penicillin) is used in the mass campaigns. In appropriate dosages, these drugs are capable of curing active cases, of preventing infectious relapses from latency, and also of preventing susceptibles from becoming infected before treponemes disappear from healing lesions of treated household members with whom they are in daily contact. Details in regard to technical policies of mass campaigns against the endemic treponematoses cannot be described here; the reader is referred to reports of WHO Expert Committees (*3*, *4*, *5*), the First and Second International Yaws Conferences (*6*, *7*), and the formulation of these policies by WHO (*8*, *9*). In mass campaigns against the endemic treponematoses, there are often included leprosy case-finding and smallpox vaccination. Thus, yaws campaigns are by no means "monovalent," as has sometimes been contended.

To illustrate the results of the work, some aspects of the Indonesian yaws campaign, led by Kodijat, (*10*, *11*) are shown in Table 4, the data being obtained from a large part of Java. The regression is shown of all forms of yaws, as well as infectious yaws, from the initial treatment surveys to the last completed resurvey in the consolidation phase of the programme. Similarly, in Table 5, the regression of infectious yaws between 1954 and 1961 in

Table 2. The epidemiology of the treponematoses

Treponematosis	Venereal syphilis	"Endemic" syphilis ("bejel")	Yaws	Pinta
Organism	*T. pallidum* I	*T. pallidum* II	*T. pertenue*	*T. carateum.*
Incubation	3 weeks or more	(?)	3 weeks to 2 months	(?).
Transmission:				
Direct (person to person):				
Venereal	Common	No	No	Not described.
Non-venereal	Rare	Commonly child to child, also child to parent.	Commonly child to child, also child to parent.	Usual.
Indirect:				
Communal utensils.	Unusual	Drinking vessels; ceremonial kissing.	Possible?	Not described.
Hands of children.	No	Possibly frequent	Probably frequent Hippelates?	(?).
Congenital	Occasional	No	No	No.
Source of treponemes.	Genital, skin, and mucous membrane lesions.	Buccal mucous and other lesions.	Skin surface anywhere.	Skin surface anywhere.
Infectiousness of lesions.	Some months	Many months	Perhaps a year	Many years.
Extent of infectious lesional surface.	Small	Small	Large	Very large.
Reservoir of infection.	*Adults:* prostitutes, amateur and professional; promiscuous males; seafarers, armed forces; latent cases.	*Children,* 2–10 years; household contacts; latent cases.	*Children,* 4–15 years; contacts in home, school and village; latent cases.	*Ages 10–30,* long-standing surface lesions.

Table 3. Mass campaigns against endemic treponematoses [1] undertaken with WHO assistance: 1950–60

Region	No. of countries assisted	Population examined		Persons treated
		Initial surveys	All surveys and resurveys	
Africa	15	23, 750, 800	47, 185, 836	16, 633, 933
Americas	13	7, 269, 200	9, 458, 846	5, 172, 271
Eastern Mediterranean	4	758, 000	1, 860, 000	324, 500
Europe	1	145, 000	850, 000	42, 000
Southeast Asia (Western Pacific)	12	94, 584, 000	225, 254, 095	15, 002, 820
Total	45	126, 507, 000	284, 608, 777	37, 175, 524

[1] Does not include venereal syphilis projects.

Table 4. Achievement of initial treatment survey (Survey I), last resurvey and completed resurvey in consolidation up to end June 1961 in provinces inside Java

Survey I (S. I)			Last resurvey (LRs)			
Population	People examined	Yaws cases found	Last surveys	Population	People examined	Yaws cases found
29, 813	21, 632	245	I			
2, 480, 491	2, 022, 802	80, 268	II	2, 507, 163	2, 037, 808	24, 697
3, 144, 366	2, 541, 228	216, 738	III	3, 172, 449	2, 640, 438	36, 877
4, 137, 401	3, 402, 121	444, 475	IV	4, 336, 138	3, 592, 533	47, 009
2, 244, 223	1, 796, 345	272, 532	V	2, 299, 533	1, 867, 595	27, 044
1, 155, 812	924, 448	157, 177	VI	1, 292, 835	1, 009, 176	13, 475
645, 775	477, 252	86, 641	VII	688, 316	557, 040	7, 737
319, 763	279, 365	40, 755	VIII	315, 561	277, 231	3, 923
61, 607	44, 176	4, 545	IX	56, 062	44, 875	764
14, 189, 438	11, 487, 737	*1, 303, 131*		14, 668, 057	12, 026, 696	*161,526*

Completed first resurvey in consolidation (R.C.1)				Percentages of—						
				People examined			Yaws cases			
Population	People examined	Yaws cases found		S.I	LRs	R.C.1	S.I	LRs	R.C.1	
		Total	Inf.						Total	Inf.
26, 875	20, 722	60	0	72. 56		77. 11	1. 13		0. 29	0
2, 661, 426	2, 151, 727	11, 958	399	81. 55	81. 28	80. 85	3. 97	1. 21	. 56	. 02
3, 456, 609	2, 682, 913	19, 900	1, 506	80. 82	83. 23	77. 62	8. 53	1. 40	. 74	. 06
4, 722, 247	3, 825, 923	29, 314	2, 009	82. 23	82. 85	81. 02	13. 06	1. 31	. 77	. 05
2, 430, 779	2, 041, 799	15, 878	1, 523	80. 04	81. 22	84. 94	15. 17	1. 45	. 78	. 07
1, 326, 067	1, 091, 420	7, 224	736	79. 98	78. 06	82. 31	17. 0	1. 34	. 66	. 07
774, 864	653, 087	5, 484	870	73. 90	80. 93	84. 28	18. 15	1. 39	. 84	. 13
356, 364	319, 758	2, 633	107	87. 37	87. 85	89. 73	5. 59	1. 42	. 82	. 03
68, 641	56, 536	592	72	71. 71	80. 05	82. 36	10. 29	1. 70	1. 05	. 13
15, 796, 997	12, 823, 163	*92, 983*	*7, 222*	80. 96	81. 99	81. 17	*11. 34*	*1. 34*	*. 73*	*. 06*

Nigeria is brought out. The relatively high number—although a very low percentage—of infectious cases found at resurveys is a warning of the need for extensive consolidation and long-term surveillance, to prevent foci from giving rise to a new, endemic spread of the infection.

In order to illustrate the clinical outcome in tropical yaws, Figures 2 and 3 (*see page 18*) show the result of PAM therapy. To illustrate the serological outcome following PAM therapy, the seroreversal rates to VDRL testing are presented in Table 6. It should be noted that a series of WHO cooperative studies has shown that, in tropical conditions, as many as one in three cardiolipin antigen seroreactors are false-positives. Table 7 illustrates this in a sample population in Thailand, using TPI testing as a reference procedure.

Finally, in Table 8, age-specific seroprevalence rates are shown at the beginning and end of the attack phase in the endemic syphilis campaign of Grin (*12*) in a pilot area in Bosnia, Yugoslavia. The very significant recession of seroreactivity is noted, as well as the different pattern in the two types of community.

The global effort to control or eventually to eliminate the endemic treponematoses must be a long-term one. Initial results after 15 years of work are encouraging, but the outcome is uncertain. It is known from experience in malaria (*13*) and yaws (*14*) that lasting interruption of transmission with resulting complete eradication cannot be envisaged unless the epidemiological surveillance is ultimately decentralized to rural health units. One of the outstanding questions in the administration of

Table 5. Progress of mass campaign against yaws in Nigeria, 1954–61

	People examined	All yaws cases	Percentage of examined	Infectious cases	Percentage of examined
Initial Treatment Surveys					
1954	541,681	114,836	21.2	33,043	6.1
1955	1,015,234	284,234	27.9	56,369	5.6
1956	953,196	163,471	17.2	48,982	5.1
1957	1,118,469	63,832	5.7	24,989	2.2
1958	1,171,994	69,607	5.9	28,694	2.4
1959	1,217,129	48,531	4.0	21,076	1.7
1960	992,989	30,746	3.1	15,013	1.5
1961	722,415	5,749	.8	2,243	.3
Total	7,733,107	781,006		230,409	
Resurvey Findings					
1954	119,404	1,213	1.0	172	0.14
1955	479,965	4,224	.9	3,690	.76
1956	1,553,341	10,993	7.1	5,299	.34
1957	1,802,720	36,173	2.0	11,559	.6
1958	3,437,087	47,836	1.4	18,278	.5
1959	4,569,621	35,954	.8	19,685	.4
1960	6,061,000	42,226	.7	13,042	.2
1961	6,303,850	43,579	.7	14,007	.2
Total	24,326,988	222,198		85,732	

Table 6. Serological response to PAM treatment in 6,599 cases of yaws in the New Hebrides, Solomon Islands, and Western Samoa

Interval between initial survey and resurveys	Percentage seroreversal	Average
Within 1 year	6.2–9.0	6.8
1–2 years	17.6–27.9	24.5
3 years	35.5–54.4	41.1

the health of the public in many developing countries today is: at what point in the consolidation phase of any communicable disease mass campaign is it epidemiologically sound, administratively wise and practically possible to transfer the responsibility for surveillance to the local health services, after transmission of infection has been widely interrupted and the disease has been reduced to manageable proportions?

World Trends in Venereal Syphilis

The remarkably rapid and widely reported decrease in venereal syphilis incidence which followed the post-war maximum incidence peak in 1947–1950 in most countries coincided with the increasing availability and the world-wide use of penicillin in the treatment of this treponematosis. In the last few years there have been sporadic reports of a reversal of this downward trend, particularly in Europe and the Americas

Table 7. Percentage of false seroreactors in VDRL/TPI testing. Sample study in a yaws population, Thailand, 1962

Age-groups	TPI-reactive	VDRL-reactive	Difference: False reactors	Standard E.t.	
				Expected [1]	Observed
Children < 15	15	43	28 ± 7.5	1.96	21.44
Adults > 15	42	76	34 ± 10.59	2.00	13.17
Total	25	56	31 ± 6.46	1.96	34.609

[1] Expected t. at 5% level.

Table 8. Cases and prevalence rates at the beginning and end of the attack phase [1] of the mass campaign against prepubescent, endemic syphilis in a pilot area, Zvornik Srez, in Bosnia, Yugoslavia

MOSLEM

Age	Cases diagnosed during the campaign	Seropositive at their last examination	Total population	Prevalence of cases at the beginning of attack phase of the campaign, %	Prevalence at the end of attack phase of campaign, %
0	24	3	950	2. 5	0. 3
1–4	166	8	2, 636	6. 3	. 3
5–9	427	43	3, 122	13. 7	1. 4
10–14	528	46	3, 457	15. 3	1. 3
15–19	466	84	2, 933	15. 4	2. 9
20–	779	152	4, 377	17. 8	3. 5
30–	574	122	2, 314	24. 8	5. 3
40–	660	123	2, 470	26. 7	5. 0
50–	360	89	1, 516	23. 7	5. 9
60–	177	56	745	23. 8	7. 5
70–	50	11	216	23. 1	5. 1
80+	16	2	70	22. 9	2. 9
Total	4, 227	739	24, 806	17. 0	2. 98

ORTHODOX

0	0	[2] 1	876	0	----------
1–4	53	10	2, 436	2. 2	0. 4
5–9	163	16	2, 637	6. 2	. 6
10–14	240	25	3, 938	6. 1	. 6
15–19	196	42	3, 281	6. 0	1. 3
20–	238	57	4, 728	5. 0	1. 2
30–	139	23	2, 193	6. 3	1. 0
40–	181	32	2, 427	7. 5	1. 3
50–	73	25	1, 265	5. 8	2. 0
60–	29	6	731	4. 0	. 8
70–	13	4	205	6. 3	2. 0
80+	1	[2] 2	58	1. 7	[2] 3. 4
Total	1, 326	243	24, 775	5. 4	. 98

[1] Interval between first and last survey in attack phase of campaign: approximately three years.
[2] Cases with no diagnosis recorded.

(*8*, *15*, *16*). To inquire further into the nature and extent of the situation, the World Health Organization has undertaken a global study of incidence trends. Some of the main findings only can be summarized in the present paper. The study was based on national data, on the second WHO Report on the World Health Situation, and particularly on an inquiry by WHO requesting uniform return data on pre-designed survey forms from national health administrations. One hundred and six countries and areas participated in the study, and 137 reports were received covering the period 1950–1960, as shown in Table 9 on a regional basis.

The statistical and other limitations of reporting- and study-data on venereal syphilis are well known and will not be reiterated. While it is undoubtedly true that incidence data on syphilis usually represent *minimal figures*, as is the case in Europe and North America, there is evidence that considerable *over-reporting* also may take place through confusion with yaws in some areas of Africa.

Table 9. World Health Organization survey of early syphilis trends in the different world regions, 1950–60

Region	Number of countries and areas	Number with increased incidence of early syphilis	Percentage with increased incidence
Africa	29	23	79. 3
Americas	21	15	71. 4
Eastern Mediterranean	12	6	50. 0
Europe	20	19	95. 0
Southeast Asia and Western Pacific	23	13	56. 5
Total	105	76	71. 1

Figure 2. Early infectious yaws in five-year-old child (Nigeria), with circinate or annular papillomatous lesions of the face, vegetating papillomata of right shoulder

In Table 10 the increasing incidence trend of early syphilis in the regions of the world is shown, representing a measure of the problem for the period. Annual incidence rates have been calculated for each world region per 100,000 adult population over 15 years of age. In the European Region, this trend is shown in detail in Table 11. In Table 12 are shown the range and the maxima and minima of early syphilis for the countries in each region. It is

Figure 3. Same child 10 days later following injection of 0.6 mega-unit of PAM. Depigmented healed areas of face and trunk, desiccated healing lesions of arm

believed that the very high rates of reported syphilis in Senegal and Sudan in 1950 (1156.5 and 3687.5 respectively) and those for Basutoland in 1951 (1232.0) and possibly Togo in 1960 (729.8) are due to confusion with yaws. It is clear that such a weighting of data from Africa precludes any attempt to compute an overall world incidence in a single expression of trend, if data are included from regions where yaws or other endemic treponematoses are highly prevalent. In Figure 4 are compared rates for six countries (or areas) in several WHO regions, and in order to obtain a more accurate picture in one region, attention is focused in Figure 5 on data from six European countries with a more or less constant reporting system over the years.

Table 10. Annual rates per 100,000 adult population over 15 years of age of early syphilis for the different world regions, 1950–60

Region	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960
Africa	417.0	276.1	151.3	180.1	152.3	109.0	98.5	94.0	131.5	91.4	[1] 48.6
Americas	46.3	33.8	23.9	23.2	17.0	12.0	11.9	11.7	12.8	14.1	17.0
Eastern Mediterranean	278.1	220.2	200.8	201.6	182.7	149.3	161.0	138.8	142.2	137.3	[2] 34.6
Europe	19.5	12.4	9.5	7.2	5.7	4.9	5.9	4.5	4.9	6.0	9.5
Southeast Asia and Western Pacific	50.5	30.1	24.4	22.1	18.2	24.1	24.3	27.3	32.0	25.0	15.6

[1] Eight countries not reporting.
[2] Three countries not reporting.

Table 11. Number of countries in European region with increase/decrease over previous year of early syphilis rates per 100,000 adult population over 15 years of age

Year	Countries with rate increase	Countries with rate decrease	Total countries
1951	2	14	16
1952	2	15	17
1953	3	17	20
1954	1	19	20
1955	5	16	21
1956	10	10	20
1957	5	14	19
1958	7	11	18
1959	14	5	19
1960	14	4	18

There can be little doubt that the sharp decline of venereal syphilis after the post-war peak in 1948–1951 came to a stop in the years 1954–1957, to be followed subsequently by a sustained rising incidence trend in all regions of the world, as reported since in 71.1 percent (or 76 out of 106) of the countries participating in the WHO study. This rising trend is furthermore pictured among national and foreign seafarers in maritime countries. The contribution to the higher incidence rates by this occupational group is in some instances considerable. Thus in Denmark—which doubled its incidence rate from 1959 to 1960—more than half of the cases occurring originated abroad, emphasizing the increasing rate at which *T. pallidum* is being spread in international intercourse, and point-

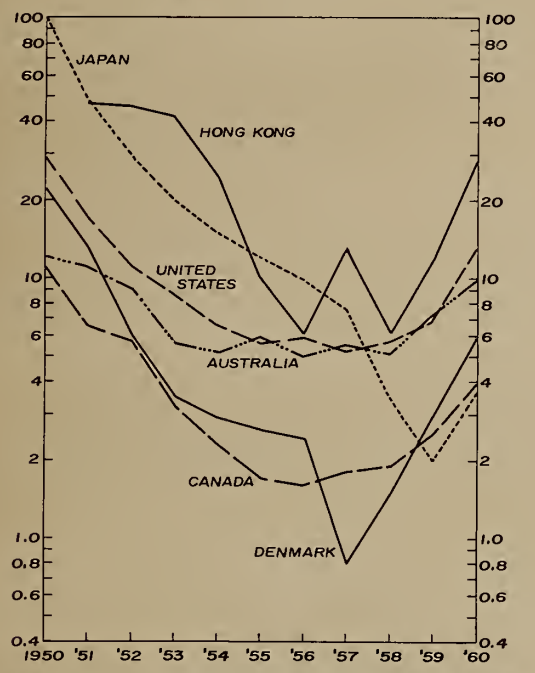

Figure 4. Early syphilis, 1950–60, in selected countries in the Americas, Western Pacific, and Europe. Rates per 100,000 adult population over 15 years of age

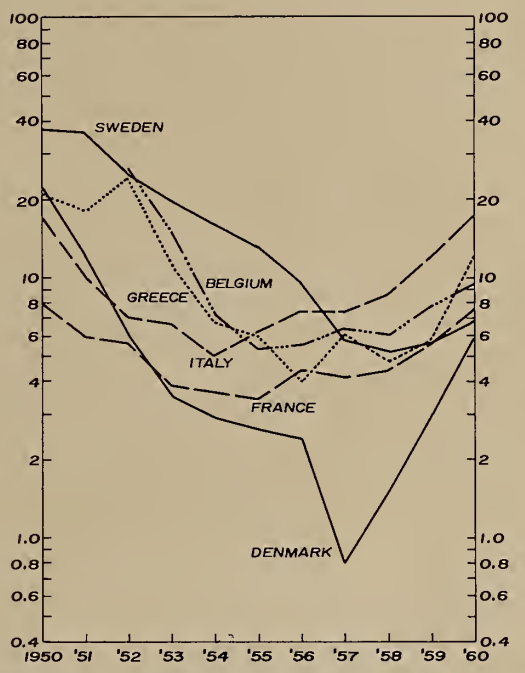

Figure 5. Early syphilis, 1950–60, in selected countries in the European Region of WHO. Rates per 100,000 adult population over 15 years of age

Table 12. Range of annual incidence rates per 100,000 adult population over 15 years of age, maxima and minima of early syphilis for each world region, 1950–60

Region	Highest and lowest rates in 1950	Highest and lowest rates in 1960	Minimum rate during decade	Maximum rate during decade
Africa	Senegal 1156.5 Tanganyika 0.5	Togo 729.8 Mauritius 8.0	Tanganyika 0.02 (1959).	Basutoland 1232.0 (1951).
Americas	Colombia 340.0 Guatemala 8.9	El Salvador 180.0 Br. Guiana 2.0	Canada 1.6 (1956).	Colombia 340.0 (1950).
Eastern Mediterranean.	Sudan 3687.5 Israel 7.2	Ethiopia 82.2 Jordan 2.0	Jordan 0.01 (1959).	Sudan 3687.5 (1950).
Europe	Yugoslavia 53.6 France 8.4	Turkey 41.1 Finland 0.7	Czechoslovakia 0.2 (1958).	Yugoslavia 53.6 (1950).
Southeast Asia and Western Pacific.	Malaya 246.5 Philippines 2.6	New Caledonia 44.3 Fiji 2.0	Philippines 0.2 (1960).	Fr. Polynesia 250.8 (1952).

ing to the real need for serious implementation by signatory countries of the International Agreement of Brussels in its revised form (1960) (*17*). Several newly independent nations have not adhered to this Agreement as yet. Among the important maritime countries which have not ratified the Agreement are the U.S.S.R. and the United States of America.

There has been a sustained decline in congenital syphilis in the decade 1950–1960. Sixty-five per cent (or 58 out of 90) of the countries participating in the WHO study show an almost uninterrupted fall in annual incidence. However, in Africa and Asia a rising incidence was reported. Congenital annual rates in these regions of 500 to 1,000 per 100,000 children under 15 years of age point again to the confusion in reporting with the endemic treponematoses of childhood, particularly yaws. It should be noted, however, that congenital syphilis continues to occur in all regions, including Europe and North America.

In regard to shifts in the age distribution of early syphilis, an analysis has been undertaken of data from 12 countries which contributed material to the WHO study on this subject. The results, particularly from the European countries, support the view of a growing incidence of this infection among the young, as based on comparative data from 1950, 1955, and 1960 with particular reference to the teen-age group 15–19 years.

Outlook

If one should attempt to summarize the present treponematoses situation in the world today in the light of available data it may be said that:

1. Although a great deal of work has been undertaken in a world-wide initial effort to eliminate the *endemic non-venereal treponematoses* of childhood—particularly yaws—much still remains to be done. The outlook for the future is, however, uncertain, since rural health, maternal and child health services to give effect to the necessary long-term surveillance are only in their infancy in many developing countries. Furthermore, indifference to further action and complacency rapidly develop among health administrations and the profession as well as the public when the impressive surface pathology of endemic treponematoses disappears in the early stages of penicillin campaigns.

2. As regards *venereal syphilis*, victory over this treponematosis appears to have been celebrated prematurely at the time when incidence rates reached their post-war low in many countries, some claiming that "eradication" was within sight. There can be little doubt, however, that the rising incidence trend now prevailing throughout the world and a more rapid spread of the disease between countries are of epidemiological significance. Indeed, these are warning signs for official administrations, for voluntary and social agencies, as well as for the public. Further unfavourable developments must be expected unless manifest action is taken in all relevant national departments and unless nations become prepared to co-operate further internationally, at governmental as well as non-governmental levels.

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The First Step Toward Eradication

WILLIAM J. BROWN, M.D.

ABSTRACT

Syphilis has been a world scourge for centuries. Various kinds of measures have been taken to combat it locally; it has often been challenged tactically, but seldom—if ever—strategically.

A series of Red Cross-organized conferences in 1921 marked the first formal search for uniformity in the national approaches to V.D. control. Two years later was founded the International Union Against the Venereal Diseases.

World attention has recently been increasingly paid to the social and medical aspects of syphilis. This relatively vulnerable, comparatively simple, and therapeutically quite eradicable disease still exists and is even increasing in the U.S. Why?

As the American experience of 1957–61 shows, "as a disease control program approaches the end-point of eradication, it is the program, not the disease, which is more likely to be eradicated." This is due to the increase of the cost in skill, effort, and resources to trace the last remaining cases and treat them; and to the increase in the disinterest of society in bearing that cost.

That disinterest results in failure to take the first step in eradication, which is the decision to eradicate the disease instead of merely reducing it to a low level. We must not count the cost of case-finding, but must recognize that the job grows increasingly difficult as the end approaches.

SOMMAIRE

La syphilis est un fléau mondial depuis des siècles. Diverses mesures ont été prises ci et là pour le combattre; il a souvent été défié sur le plan tactique, mais rarement—sinon jamais—sur le plan stratégique.

Une série de conférences organisées par la Croix Rouge à partir de 1921 marqua le premier effort formel en vue d'établir un certain degré d'uniformité entre les différentes attitudes nationales envers le contrôle des maladies vénériennes. Deux ans plus tard fut fondée l'Union internationale contre les maladies vénériennes.

L'attention du monde a été accordée récemment de plus en plus á les aspects sociaux et medicaux de syphilis. Cette maladie, relativement vulnérable, comparativement simple, et avec l'égard de thérapeutique, bien'éradicable, encore existe, et même est en accroissement dans les Etats-Unis. Pourquoi?

Comme l'indique l'expérience des Etats-Unis entre 1957 et 1961, "lorsqu'un programme visant à contrôler une maladie approche vers le but final de l'extermination totale, ce n'est pas la maladie, mais le programme même qui tend à être exterminé." Ceci est dû au fait de l'accroissement des dépenses en habileté, en efforts, et en ressources matérielles qu'exigent le dépistage et le traitement des derniers cas qui persistent; ainsi qu'au manque progressif d'intérêt de la part de la société à subvenir à ces dépenses.

Ce manque d'intérêt a pour conséquence la négligence de prendre le premier pas indispensable à l'éradication totale de la maladie plutôt que sa réduction à un niveau inférieur d'incidence.

Nous ne devons pas compter la dépense que réclame le dépistage des cas, mais au contraire, il nous faut reconnaître que la tâche devient de plus en plus ardue au fur et à mesure que le but final se rapproche.

RESUMEN

Por siglos, la sífilis ha sido el azote del mundo. Se han tomado varias clases de medidas para combatirla localmente; se la ha combatido a menudo en forma táctica, pero rara vez—o nunca—en forma estratégica.

La búsqueda de uniformidad nacional en el control de las enfermedades venéreas comenzó formalmente en 1921 con una serie de conferencias organizadas por la Cruz Roja. Dos años más tarde se fundó el Sindicato Internacional Contra las Enfermedades Venéreas.

Recientemente, la atención mundial ha ido en aumento en cuanto a los aspectos sociales y médicos de la sífilis. Esta enfermedad, aunque relativamente vulnerable, comparativamente simple y terapéuticamente bastante erradicable, aún existe, y sigue creciendo en los Estados Unidos. ¿Por qué?

Como lo demuestran las experiencias estadounidenses de los años 1957 al 61, "al aproximarse el programa de control de la enfermedad al punto final de la erradicación, es el programa, no la enfermedad, la que posiblemente se erradica." Ello se debe al alza en el costo de gente hábil, del esfuerzo y de los recursos para investigar los casos que han quedado sin tratarse y tratarlos; además, se debe a la falta de interés por parte de la sociedad para hacerse cargo de ese costo.

Este desinterés trae como consecuencia la omisión del primer paso en cuestiones de erradicación, el cual es la resolución de erradicar la enfermedad, en vez de simplemente reducirla a un nivel más bajo. No debemos contar lo que cuesta encontrar los casos, pero debemos reconocer que el trabajo se vuelve cada vez más difícil, al acercarse al final.

ALTHOUGH venereal syphilis is the only treponematosis prevalent in the United States, it is ubiquitous, and has been undoubtedly responsible for most if not all of the progress which has been made against the treponematoses generally.

We speak of "one world" today, implying that the problems of one country are the problems of every country, and that the ills of one man are the ills of mankind; and often we think of this as a modern concept. Yet, historians tell us that the disease which we now call syphilis, having previously lain quiescent within certain rather remote and isolated geographic regions of the earth, suddenly, at the end of the 15th Century, took Europe and the East by storm, signalling dramatically for all the peoples of the world, that so far as this disease was concerned, there no longer existed any national boundaries. French, German, Swiss, Austrian, English, Spanish, and Italian citizens became infected within the span of a few short years before 1500; and within the decade following, the disease had spread throughout Africa and Asia, leaving literally millions of maimed and dead in its awesome wake.

We are told that each country named the disease after its enemy, some calling it "the French disease," some "the Spanish disease," and some "the Neapolitan disease." In 1495, the German emperor, Maximilian, issued a mandate calling it "the evil pocks," and declaring it had been sent by God as punishment for sin. In Paris, the Parlement decreed that an infected person should not leave his home until completely cured, and that infected foreigners should be forced to leave the city within 24 hours. The Town Council of Aberdeen ordered that, for protection from the disease which had come "out of France and strange parts, all light women desist from vice, and work for their support." The Town of Edinburgh banished all infected individuals to an island off the coast. The City of Frankfurt offered the infected free mercury treatment, and exempted them from taxes for the duration of their treatment.

And so it continued: syphilis the adversary, challenged often tactically—but seldom if ever strategically.

Then in 1921 a series of conferences was organized by the League of Red Cross Societies; and out of these meetings came perhaps the first formal statement of need for an international forum where varying viewpoints could be aired and a measure of uniformity sought in national approaches to venereal disease control. Such a Forum was at least conceived with the founding two years later of the International Union Against the Venereal Diseases.

Professor Bayet, of Belgium, first chairman of the International Union, wrote in 1928 that in combating venereal disease, ". . . some countries . . . concentrate(d) on social (aspects) . . . others concentrate(d) on individual treatment, aiming above all at the cure of the patient himself; others place(d) their trust in laws and regulations, and others, without having any definite program, (did) what they (could) here and there without any unified plan."

But the development of a unified medical-social front against syphilis has not been easy. As recently as 1948, the Report of the First Session of the World Health Organization Expert Committee on Venereal Diseases recognized the "vast social implications of venereal disease" but suggested that the World Health Organization concentrate on the public health and medical aspects, at least "until definite plans on . . . Social aspects . . . (then) under consideration by the UN and other international organizations (became) available."

In recent years, a number of enlightening conferences in great cities throughout the world have cast considerable light on both the medical *and* social aspects, not only of this disease, but of a number of others as well. Now, hopefully, in this present Forum, we may add something of additional value to the storehouse of previously accumulated knowledge, and perhaps encourage the even closer coalition of the forces of medical and social science which appears prerequisite to the global eradication of these diseases. And hopefully also, we of the United States may *be* encouraged to take the first decisive step forward toward the eradication of venereal syphilis.

What is that step, and how can we say that it has not already been taken?

Characteristics of Syphilis

Before attempting to answer this question, let's look briefly at some of the characteristics of venereal syphilis which might enhance the possibility of its eradication. The *difficulties* are *often* enumerated; but there is another side of the coin, and upon examining it, one might almost wonder that syphilis has survived at all.

In the first place, the *Treponema pallidum* itself is about as frail as a germ can be and still

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survive. Even in its natural host, it cannot survive extreme temperature changes. Outside the host, it can survive only very briefly, even under *ideal* conditions; and in fact, has constantly thwarted attempts to culture it in the laboratory. For this reason, discounting laboratory animals, there is no extra-human reservoir of infection.

The disease is not food, air, water, or insect borne. In fact, almost the only way for a human to contract it is through close, intimate relationship with someone who has the disease in an infectious stage; and that stage is a rather brief segment of the entire span of infection.

In its infectious stage, the disease is easy to detect and diagnose; and in terms of therapy, it is now among the easiest of diseases to treat curatively. Penicillin is not only curative and prophylactic, but a single injection has the power to render the patient rapidly noninfectious.

Discounting cultural and psychological factors, syphilis epidemiology, as compared with that of a number of other infectious diseases, is relatively uncomplicated. And in addition, venereal syphilis is absolutely, 100 percent preventable.

Then why does it continue to exist at all, let alone to increase in threatening proportions? Simply because we, as a people, have not yet taken the first step toward eradication.

But, what *is* this first step?

Syphilis Control in United States

In answering, let us review briefly the history of syphilis control in the United States. There is no question that great progress has been made against syphilis in this country since the turn of the century. Yet, this progress has been neither smooth nor regular. Brief, gainful sprints—usually in periods of national emergency—have been interrupted by long, barren seasons of public apathy. Wars and rumors of wars have given characteristic impetus to accelerated venereal disease control programs. But as feelings of emergency have subsided, so have the programs.

Perhaps the greatest of such programs in magnitude began with the passage of the Venereal Disease Control Act of 1938. Under this Act, our Federal appropriations alone—to say nothing of State moneys for venereal disease control—mounted as high as 17 million dollars a year. At the same time, most of the problems of the diagnosis and treatment of syphilis became solved; and we found at last that we could turn our tremendous resources from case-holding to case-finding. We launched a monumental program of education, serology, and epidemiology.

The air was intoxicating with over-optimism. The chase was on; and the heady hounds of public health were baying at the heels of syphilis. In 1947, in true campaign spirit, we brought to treatment in this country an astounding total of more than 100,000 cases of infectious syphilis alone. And by 1955, reported infectious syphilis had declined to a mere 6%—or *one-seventeenth*—of its 1947 level; and we were boasting, perhaps pardonably, of our successes in reducing syphilitic insanity, infant syphilis and syphilis mortality.

It was then we learned a principle of public health administration which might be called "the law of failure through success." This law might be simply stated: "That, as a disease *control* program approaches the end-point of eradication, it is not the disease, but the program, which is the more likely to be eradicated."

This principle was demonstrated almost to the point of disaster in the middle fifties. The low for infectious syphilis came in 1957 with the reporting of roughly 6,200 cases. Next year, the figure rose to 6,600; the year after that to 8,000, and then to 12,000; to 18,000; to 20,000.

Why?

Well, in the first place, as most of us are aware, when an infectious disease is prevalent, cases are easily found, and through the use of rather crude screening procedures may be found and treated in spectacular numbers. We have seen this in our own country, as well as in Bosnia, Haiti, Indonesia, Thailand, and Iraq, to mention only a few places where mass screening and therapy have produced dramatic results. But we have observed also, that although screening and re-screening tend to reduce prevalence, they do not result in area eradication.

As prevalence decreases, case-finding becomes increasingly difficult and demands much more refined epidemiologic techniques—techniques which will patiently and diligently search out the remaining cases. Unfortunately, these techniques, though less dramatic and less rewarding in terms of numbers of cases found and treated, are no less costly than the screening programs which preceded them. In fact, they may be more so. Yet, if they are not applied as a continuing program, regardless of cost, the few remaining cases will rapidly re-seed the population, and the disease will once more flourish.

Nevertheless, such a program will never be continued unabated as long as necessary in any

country, until the people of that country have taken the first step toward eradication.

The First Step: Decision To Eradicate

What is that first step? It is the agreement of a people that a disease *can* and *should* be eradicated. In short, it is the *decision* to eradicate.

Although abstruse, this, nevertheless, is the psychological factor in the balance of which hangs the fate of syphilis eradication; and in discussing it I wish to acknowledge that I am drawing heavily upon the work of Dr. Fred L. Soper.

Twenty thousand persons contracted syphilis in the United States last year, and 4,000—at a very minimum 4,000—died from it.

What would have been the reaction of the American public had 20,000 contracted, or had 4,000 died, of smallpox, typhus, plague, or malaria? Had the figures been only one quarter of that, there still would have been virtual panic. All the medical and public health resources of the nation would have been mustered and supplemented and thrown into the breach without question. Why? Because, although these diseases may occur occasionally in small units through re-introduction, they are *believed* eradicated in this country. We all *know* that they are eradicable, and any occurrence of them, no matter how small, is considered to be newsworthy and demanding of action—not only to the point of *control* but to the point of re-eradication.

And herein lies the key—the first step toward the eradication of syphilis. If we are to eradicate, we must not dally with eradication; we must espouse it.

We must recognize the fact that insofar as the public health authority is concerned, a state of syphilis eradication does exist in literally hundreds of our political subdivisions. And the time has come to single these out, and give them general recognition, and to work toward the expansion of their peripheries. But in so doing, we must act on the principle that *every* case which occurs within their borders is important in its own right and deserves to be examined in the full light of epidemiology. We must ask in each such instance why there was no syphilis there yesterday, and today there is.

A Program of Positive Action

I believe that the time has come when the eradication of syphilis not only may, but *must* be recognized as a workable and urgently necessary objective, with the hope at least—if not the immediate expectation—that such an objective will be embraced by the strategic forces of both public health and private medicine, and by the great public health, professional and educational organizations, as well as by State and local authorities.

This is not, I am well aware, a matter to be taken lightly. But we have dependable means of diagnosing and effecting the cure of the disease in its infectious stages, and we have developed techniques for their effective application. We are expanding our program of education for professionals in the medical and public health concepts of eradication; and we are training a large force of highly mobile nonmedical public health specialists to complement the medical force in an epidemiologic capacity anywhere in the country as needed.

Our program of public education is expanding rapidly.

We have an effective nationwide coordinating agency in the Communicable Disease Center—an agency which enjoys friendly and cooperative relationships with political subdivisions throughout the country.

We have developed ways to cope with syphilis from a public health and medical-administrative angle, without overlooking its moral, social, and economic aspects, and the possible contributions of the behavioral sciences. And in attitude and fact, we are equipping to attack it from every side.

Moreover, we enjoy the additional advantage of a highly stable political and economic atmosphere in which to work; and for this we may be thankful. In short, we are poised on the threshold of eradication; and the time is at hand to take the first step.

We can no longer rest content to reduce syphilis to a low, low level, and to maintain that level forever. Instead, we must work to eliminate the disease completely—beyond the possibility of re-occurrence, save for re-introduction.

We may speak of local, State, national, and regional eradication; but we must discard the terms "virtual" and "practical" eradication as meaningless.

We must end our preoccupation with spectacular gains; and must turn our attention fully to the remaining seeds of infection.

We must not count the cost of case-finding; but must recognize that the job grows increasingly difficult as the end approaches.

We must not sacrifice the few scattered infected individuals as no longer of public health importance; but must seek out each case, re-

gardless of cost, until there are no more cases to be sought.

When we have recognized that in eradication we must never slack until the goal is reached; when we have recognized that in taking credit for any reduction we must accept the responsibility for the residuum; when we have agreed that eradication is the end-point against which all future progress will be measured; then, and only then, will we have taken the first step toward eradication.

Let us take that step now.

Syphilis Eradication—A Plan for Action Now

LEONA BAUMGARTNER, M.D.

ABSTRACT

The tools for diagnosis and treatment of syphilis are good. The answer to its eradication seems to lie in human behavior, including both those who contract and pass on syphilis and health workers. The spread of syphilis can be stopped by connecting the laboratory, the doctor, and the public.

The drop in federal expenditures for venereal disease control coincided with rising incidence between 1950–1961. After World War II there was a drop in the flow of information on the disease, especially to the general public. There was also evidence that 50% of the cases seen by private physicians were not reported to the health authorities.

The Surgeon General's Task Force on syphilis first met in 1961. The Task Force recommended the following: finding and treating of cases; educating of professionals and the public. It recommended that health authorities visit private physicians once or twice a year for case-finding purposes.

The Task Force has also called for an increase in cluster testing. This involves the interviewing of persons who are not contacts but who might benefit from an examination. Reinterviewing of patients and a drive to assure the reporting of positive blood tests are additional recommendations of the Task Force.

We need research into human behavior: mores, attitudes, motivations. Potential laboratory work includes increased knowledge of prevention and possible techniques for producing immunity.

World elimination of this disease will come only from world action.

SOMMAIRE

Nous avons à notre disposition de bons outils pour le diagnostic et le traitement de la syphilis. La réponse au problème de sa disparition complète semble être dans la conduite des humains, aussi ceux qui contractent la syphilis et la passent à d'autres que les agents des services de la santé. On peut empêcher la syphilis de se répandre en établissant des contacts plus étroits entre le laboratoire, le médecin et le public.

La baisse dans les dépenses du gouvernement fédéral pour la lutte préventive contre les maladies vénériennes a coïncidé avec un nombre plus grand de cas entre 1950 et 1961.

Après la deuxième guerre mondiale il s'est produit une baisse dans le courant des informations regardant ces maladies, surtout vers le public en général.

On a lieu de croire que 50 pour cent des cas traités par des médecins privés n'ont pas été rapportés aux autorités de la santé.

Le Groupement stratégique mixte du directeur du service de santé au ministère de la guerre s'est réuni pour la première fois en 1961 pour traiter du problème de la syphilis. Le Groupement stratégique a recommandé les mesures suivantes: découvrir et traiter les cas; éduquer les médecins, les personnel des services de la santé, et le public. Il a recommandé que les autorités du service de la santé se rendent auprès des médecins privés une ou deux fois par an pour leur demander s'ils ont découvert des cas.

Le Groupement stratégique a aussi demandé à ce qu'on fasse davantage d'examens de groupes divers. Ceci implique l'interview de personnes qui ne sont pas des contacts mais qui pourraient avoir avantage á subir un examen.

L'interview supplémentaire des malades après qu'un certain temps s'est écoulé et une campagne pour demander que les examens positifs du sang soient signalés sont d'autres recommandations du groupement stratégique.

Nous avons besoin d'études plus approfondies du comportement humain: coutumes, façons de voir, motivations.

Les travaux de laboratoire pourraient être orientés vers une connaissance plus grande des techniques de prévention et peut-être vers la possibilité d'arriver à l'immunité.

La suppression mondiale de cette maladie ne se fera que par l'action concertée du monde entier.

RESUMEN

Los medios para el diagnóstico y tratamiento de la sífilis son adecuados. La clave para la erradicación de esta enfermedad parece encontrarse en la conducta humana, incluyendo tanto la de aquellos que la contraen y la propagan como la de los funcionarios sanitarios. Es posible controlar la propagación de la sífilis estableciendo vínculos entre el laboratorio, el médico y el público.

La reducción en los egresos federales por concepto de la protección contra las enfermedades venéreas coincidió con el aumento registrado en la incidencia de dichas enfermedades entre 1950 y 1961.

Después de la Segunda Guerra Mundial la divulgación de información sobre la sífilis ha disminuido, especialmente en cuanto al público en general.

Se ha comprobado que un 50% de los casos tratados por médicos particulares no se reportaron a las autoridades sanitarias.

La primera reunión del Grupo Especial reunido bajos los auspicios del Dircetor de Servicios Médicos se llevó a cabo en 1961. Dicho Grupo recomendó lo siguiente: el descubrimiento y tratamiento de los casos y la edueación de los profesionales y el público en general. Recomendó que las autoridades sanitarias visitaran a los médicos particulares por lo menos una o dos veces al año con el fin de descubrir los casos existentes.

El Grupo Especial también abogó por que se incrementaran los análisis en masa. Para ello es necesario interrogar a individuos que no están contagiados pero que podrían derivar beneficios de un examen.

Recomendó asimismo el Grupo Especial el realizar repetidos interrogatorios a pacientes, así como el llevar a cabo una campaña para lograr que se reporten los análisis de sangre que den resultado positivo.

Es preciso efectuar investigaciones con respecto a la conducta humana—las costumbres, actitudes, motivación.

Los estudios de laboratorio a realizar incluyen el procurar obtener conocimientos más amplios en materia de prevención y el realizar investigaciones sobre posibles técnicas de laboratorio para lograr la inmunización.

Sólo se logrará la erradicación universal de esta enfermedad a través de una coordinada labor en todo el mundo.

IT IS ALMOST impossible to listen to the papers presented here without concluding that syphilis is a disease about which, from a traditionally medical point of view, we know a very great deal.

Here is a disease with a sordid history stretching over many centuries—a disease for which, thanks to research, we have good methods of diagnosis, treatment and cure. Our methods of diagnosis are accurate in all but a tiny percentage of cases; our treatment is effective, inexpensive, and extremely easy to administer. If all we know had been discovered by one scientist at one time, I think he might have been excused for saying: "Well, that takes care of that problem. Now, let's move on to the next one."

Yet the problem has not been solved, even in those areas where large efforts have been put into the job. I am sure many of us thought it would have been solved, in large measure, long before now. As we listen here, many of us must have that strange feeling, not yet wholly explained by those who study the human mind, that we have been here before. In this case, not much explanation is needed. We *have* been here before in a very real sense. We are back again for another crack at an old and familiar enemy.

It would be presumptuous for anyone to claim a full explanation for our failure this far. Since our tools for diagnosis and treatment are good, much of the answer seems to lie in human behavior; not only the behavior of those who contract syphilis and pass it on to others, but the behavior of health workers who have not yet brought to all who need them the excellent weapons the laboratories have provided. The spread of syphilis can be stopped by vigorous efforts to build a bridge, a highway, a transmission line, between the laboratory, the doctor and the public.

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What's Past Is Prologue

The Task Force of the U.S. Surgeon General, of which I served as chairman, came into being late in 1961, and had available to it the history of recent action against syphilis in this country, and the record of results. A number of parts of that history stood out (*1*).

Dr. Parran's Recommendations

In 1936, Dr. Thomas Parran, then Surgeon General of the United States Public Health Service, reported on the recommendations of a national venereal disease control conference. This, of course, was during the pre-penicillin era of arsenical treatment, but there was treatment. These, briefly, were the recommendations:

First: Find, report, and interview for sex contacts every case of syphilis.

Second: Get enough money, drugs and doctors to treat every case regardless of cost. (You will recall that a full course of treatment was much more expensive then than it is now.)

Third: Draw health agencies and private physicians together in a united front against syphilis and educate them to use modern scientific methods.

Fourth: Give citizens the information required for individual and public protection.

An interesting point about these recommendations is that, although they were not applied equally on a nationwide basis as Dr. Parran had intended, there was ample evidence that a program based on them would work. Largely under the impetus of World War II, the first two recommendations *were* applied. The blood testing of selective service candidates for the armed forces turned up much needed information on the extent of the problem. Informa-

tion programs, plus actual treatment and protective procedures, brought knowledge of syphilis and understanding of how it could be avoided to hundreds of thousands of members of the armed forces, and this knowledge spread into the civilian population. Penicillin came into the picture, and a nationwide system of rapid treatment centers was established to curb the spread of syphilis in military camps, and to prevent undue absenteeism from war jobs. The public and the professions were on their way toward controlling the spread of syphilis.

The Incidence of Syphilis

The last two decades constitute a remarkable record of man's successes and his failures in the attack on syphilis. During the period when the control apparatus was being readied (1941 through 1947) the rate of reported cases of primary and secondary syphilis in the United States rose from 51.7 per 100,000 to 75.6. In my opinion it is probable that this rise would have been much higher in these wartime years if it had not been for the work that was done under Dr. Parran's recommendations.

From 1948 to 1953 came what might be called the period of orderly decline. The rate of reported cases of primary and secondary syphilis in this country dropped from 55.9 in 1948 to only 6.2 in 1953. In that year—1953—only 9,551 cases of primary and secondary syphilis were reported in the United States. There had been over 106,000 in 1947. These figures, incidentally, are by governmental fiscal years.

This was a good record; really a spectacular record. During the next four years (1954 through 1957) reported cases of primary and secondary syphilis continued to drop, as did the rate per hundred thousand, which hit this country's alltime low, 3.8, in 1957. This was a period when support for venereal disease programs, and general interest in the problem, continued to decline, as they had since 1950.

Then, in 1958 the rate of reported cases of primary and secondary syphilis began to rise again. It was 3.9 in 1958, 4.7 in 1959, 7.1 in 1960, and 10.4 in 1961. Between 1956 and 1960 there was a 132.1 percent increase in reported cases of primary and secondary syphilis in the 0–19 year age group and a 135.8 percent increase in the 15–19 year age group.

Mortality from syphilis, it should be said, declined nearly uniformly from 1949 through 1960, and so did first admissions to mental hospitals from 1949 through 1959, at least according to official reports.

Expenditures for Venereal Disease Control

Money, of course, is not the entire answer to control of syphilis and the other venereal diseases. In view of the changing rate of cases of primary and secondary syphilis reported in this country, however, it is interesting to note that during the 11 years from 1950 to 1961, public expenditures for venereal disease control dropped from 20 cents per capita to 12 cents per capita. State and local expenditures in this period were relatively constant, but federal expenditures dropped from $16 million in 1950 to $3 million in 1955, and then increased somewhat to $5.8 million in 1961.

Public Information on Syphilis

During the war, and largely because of the special social dislocations brought about because of the war, there was a tremendous flow of information about syphilis—information aimed at the general public, as well as at the doctor and at students in schools and colleges. In a way this was stimulated by the advent of penicillin, although this new drug was too often hailed as *the* answer to the problem. There was much hailing of penicillin and what it could do, but not enough about how to get it to all who were infected. In any event, there appeared to develop a feeling that penicillin would do the job and that the problems of syphilis control were rapidly fading into the past. The torrent of information that had poured from radio, newspapers, television and magazines slowed to a trickle. Editors moved on to other things. Meanwhile, syphilis moved on to other people. If the problem was solved, the syphilis organism did not know it.

An Assessment of the Past

Too much has been said here about syphilis for a detailed review of the situation as it was known when the Task Force came into being. Let me, however, give a few points and conjectures without presenting full data in each instance:

1. It was obvious that Dr. Parran's recommendations would work, but it was equally obvious that they had not been fully applied. There had not been a welding of physicians and health agencies, including government, into a united front. There had not been a full, nationwide effort. Most of all, there had not been a total, *continuing* effort.

2. It was clear that as federal funds declined, a situation was created in which new cases of syphilis could and did rise.

3. Penicillin was such a magnificent weapon against syphilis that near-miraculous powers were attributed to it. Physician and layman alike assumed that penicillin would solve the problem in a hurry. It was very nearly assumed that the drug would somehow seek out the afflicted and inject itself.

4. There was a very sharp drop in the flow of information on venereal disease, especially to the general public.

5. There was some evidence of growing moral laxness, especially among teenagers, and less inhibition about sexual activity. How much of this was due to fundamental changes in society and how much to the general feeling that V.D. was now easy to handle if it did occur, is hard to assess.

6. There was evidence of a growing amount of spread of syphilis through homosexual activity, especially among males.

7. Bad as official reports showed the situation to be, in actuality it was undoubtedly worse. There was evidence that at least 50 percent of the cases of syphilis seen by private physicians were not reported to health authorities, thus greatly reducing the chance of finding all individual sources of infection. When reporting by all units was considered, including clinics, doctors, laboratories and so on, it was estimated that while, in 1961, somewhat fewer than 19,000 cases of primary and secondary syphilis were reported, the disease was probably occurring at the rate of at least 60,000 cases that year.

Origin of the Task Force

The nations represented here have many different types of government, and varying local public health problems. What is effective in one country, under its special circumstances, may not be the best way for another. Nevertheless, I hope it will be of interest to see, just for a moment, how our Task Force came into being, for we all learn from each other.

Whatever type of government we serve under and whatever the programs we seek to conduct, we have this in common: we need support and we need money for what we do.

In the United States, as you know, considerable public health activity is financed by states and towns and cities out of local taxes. At the national level, public health expenditures come out of federal taxes and are made by the United States Public Health Service, under the Department of Health, Education, and Welfare. Obtaining these funds requires the approval of the Congress of the United States. In practice a request is made, and agencies asking for money are queried by the Congress as to why they need it and exactly what they plan to use it for.

In the spring of 1962, in connection with the 1962 budget request, members of the Appropriations Committee of the House of Representatives asked many questions about venereal disease, especially syphilis, and in its report the Committee said:

"The Committee is greatly disturbed as a result of the factual information received concerning the increase in venereal disease. While the full amount of the budget request is allowed, this will not do the work that is needed in this field. Work in this field is badly in need of reorganization. Syphilis is easily detected and in the early stages treatment is successful and not difficult. This is a disease that ought to be eliminated in the United States. However, this will not be accomplished until the Public Health Service and State Health Departments attack it jointly and with a firm attitude. The money appropriated by the Congress will be frittered away with little result if we continue in the same manner as we have during the last few years. It is ironic that more attention is paid to the control of foot and mouth disease in cattle and vesicular exanthema in hogs than we do to venereal disease which is affecting so many of our young people. The Committee has in the past urged more realistic control measures and continues to do so. Public Health people have a knowledge based upon facts. This knowledge must be converted into action. The Committee will expect the Public Health Service to have recommendations for an effective program when hearings are held next year."

Although Congress has previously asked directly for action on public health problems, it does not do so often. People who should know tell me that what really agitated the Committee was the upsurge of venereal disease in teenagers, plus the fact that the nation had no real "new look" in its plans to handle the problem.

Shortly after the Committee made its report, Dr. Luther Terry, the Surgeon General, acting on the recommendation of the Public Health Service Advisory Committee on Venereal Disease Control, appointed the Task Force. Its make-up was interesting: a physician and expert on syphilis; the executive officer of a state board of health, also a physician; a leading business executive; a representative of a voluntary

citizens' group, and a city health commissioner.[1] The Task Force met for the first time in New York City on September 13, 1961.

Findings of the Task Force

In discussing the recent history of syphilis in this country, I have covered much that the Task Force found. It selected four items as particularly disturbing:

1. Evidence of a chain reaction in the spread of syphilis infection, especially among teenagers.
2. Evidence that there were actually many more cases of syphilis than were being reported, despite laws requiring that all cases be reported.
3. Evidence that the effective techniques of control and therapy that were available were not being applied widely enough.
4. Evidence that unless a vigorous and expanded program was started at once, the present increased spread of syphilis might be still further accelerated.

Recommendations of the Task Force

It was obvious that aggressive action was needed and without delay. The Task Force felt this action should fall into two categories: First, find the cases and treat them; second, educate—educate the professionals and educate the public. These two categories do not necessarily come in this chronologic order. In some instances education will be a prelude to case finding and therapy. Let me enlarge on these two parts of the program.

Case Finding and Treatment

Why have we fallen down so badly in our attack on syphilis? There are many reasons, but one that stands out and cries for correction is that we don't know the people who have syphilis and where they are. We know some of them, but because of the shockingly inadequate reporting of this disease, thousands of individuals who have it are wandering about, free to spread it further. It is pitiful public health practice to cure an individual of syphilis by giving him an antibiotic, while at the same time allowing one or two or three of his contacts to carry the disease to others, or even to reinfect him. This kind of procedure will not only fail to eradicate syphilis, it will allow it to spread like a forest fire. The individuals who have syphilis have *got* to be found. There are no if's, and's or but's to this. Finding them will be a bother and nuisance to some people, but I think we had better agree on one point: if we aren't willing to bother people in this matter, we aren't going to control syphilis, and we might just as well make up our minds to it. Furthermore, the bother we cause by interviewing and testing patients and contacts, and by pressuring all doctors to report their cases to the health authorities, is a small thing indeed compared to the "bother" that will come if syphilis is allowed to continue its present chain reaction spread.

The Task Force program calls for a major effort to enlist private physicians in this country in the fight against syphilis. It is *not* enough for the physicians to treat those who come to them. They must report their cases to the health officials who are in a position to follow up all contacts. Many of these contacts, as you realize, do not know they have syphilis, and must be tested to establish a diagnosis.

Since it is clear that in many instances the physician does not report all his cases of syphilis, health authorities must go to him. The Task Force has recommended at least two visits per year by public health representatives to 100,000 general practitioners, and one visit a year to the remaining 130,000 physicians in the country.

Let us be direct about it. This is specialized, consistent medical detective work to find persons who, right now, are in a position to spread a disease which—and I think this needs to be emphasized—cannot only cause death and insanity, but can injure or destroy the unborn child. We know this, of course, but sometimes we tend not to think about it. I am convinced that teenage children, who have grown up in the blissful V.D. ignorance of the penicillin era, very often do not know it. We are going to have to engage in this detective work with reluctant doctors, reluctant patients and elusive contacts. *But it must be done.*

The Task Force has called for an increase in so-called cluster testing. I will not go into this departure from conventional techniques, nor is that needed for this audience. Suffice it to say that interviewing patients and contacts produces a certain number of individuals with syphilis. Interviewing these groups, *plus* other persons the patient believes might benefit from an examination for syphilis produces many

[1] Members of the Task Force were: Arthur C. Curtis, M.D., Professor and Chairman, Department of Dermatology, The University of Michigan; A. L. Gray, M. D., Executive Officer, Mississippi State Board of Health; Benno E. Kuechle, Vice President, Employers Mutuals of Wausau (Wisconsin); T. Lefoy Richman, Projects Coordinator, National Commission on Community Health Services, New York City; Leona Baumgartner, M.D., Commissioner of Health, City of New York, Chairman.

more. In one evaluation, between July, 1960, and March, 1961, cluster testing turned up 23.6 percent more infections than just contact tracing. Put into numbers, this was a series of 5,452 physicians' cases. Contact tracing alone produced 2,047 additional primary and secondary syphilis cases. Cluster testing produced 487 additional cases—487 men and women who otherwise would have been at liberty to start the chain reaction all over again.

The Task Force has also recommended reinterviewing syphilis patients for contacts. Experience has shown that a second interview frequently produces additional contacts not mentioned during the first interview. In one study of 248 patients of private physicians, 92 named contacts during the second interview that had not been named during the first session. Nearly 19 per cent of these patients at their second interview named persons, unmentioned the first time, who had primary or secondary syphilis.

Interviewing patients about their private lives is an annoyance to all concerned. Let me hammer it home once more: It is an annoyance we must put up with if we are going to reverse the trend of syphilis. It cannot be avoided.

We also need an all-out drive to assure the reporting of positive blood tests for syphilis by all laboratories, private and otherwise. It is ridiculous but true that an individual can now be tested for syphilis, receive a positive answer, and still not get treatment. We have trouble enough with the problem of individuals who honestly do not know they have syphilis without having to let slip those who have been diagnosed. Where there are not laws to make laboratories report these findings, such laws should be enacted. Where there are such laws they should be enforced. I believe this problem is one for the states, through their health departments. Obviously, gaining the cooperation of the laboratories through understanding and voluntary cooperation is to be desired, but whether that is always possible or not, we cannot allow a blanket of secrecy to separate people with syphilis from those who could help them and consequently protect their possible future contacts. Public disclosure of individual cases by name, of course, we do not want and will not permit, but these people must be known to health authorities. I suspect that if these were individuals with plague there would be little opposition to finding them and applying public health measures. Syphilis is not so much more pleasant a disease that it deserves softer handling.

Education

The flow of information about venereal disease has been all but stopped. It may be that penicillin and its cousins, the other antibiotics, turned public interest toward the laboratory and away from the problems of detecting disease and bringing it under treatment. No matter what the cause or causes, less is certainly taught the public about venereal disease these days, and less is taught to nurses, social workers, teachers, public health officers, public leaders, student physicians and others. There used to be a major effort to get venereal disease information into the schools, but this has dropped off. There was a great deal of information about syphilis in our magazines, but that has dropped away. Syphilis remains. It is not gone, just forgotten.

We need an intensified drive to reach professional personnel, and this means professional personnel in the broadest sense. It would include physicians, nurses, teachers, social workers, ministers, people working in youth groups, and many others. Many of these people need to know more about the clinical effects of the various venereal diseases, how they are transmitted, roughly what treatment amounts to, and so on. But most of all they need to understand the importance of the major part of the effort, to find cases, to bring them to treatment. We need seminars, conferences, workshops, training courses. We need that most difficult of all things: to put magic in our materials so they will appeal to our audience, so they will enlist willing and enthusiastic support for this drive. The non-physicians in this group are just as important as doctors in all this, maybe more so.

There is a tremendous need for education of the public, especially teenagers. Those of us who remember the arsenical treatment days find it difficult to conceive of persons not knowing about syphilis, not fearing it, not alertly interested in avoiding it. But we have a whole new generation, grown up in a new atmosphere, the phoney atmosphere of quick victory over syphilis. While a large majority of them appear to recognize venereal disease as essentially serious, they fall down on detailed information about the specific diseases, how they are transmitted, and the rest (*2*). If we can get adequate information to the public, we will prevent some cases of syphilis; there is ample evidence that its rate is lower as education rises. Prevention of course is better than cure. We will also heighten the suspicion on the part of the individual that he may have this disease, leading to

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more prompt application for treatment. There are many places and ways for this information to reach the public. One critical place is certainly in school textbooks and school hygiene courses.

We talk a lot about mass media these days, and we need to use mass communications. Yet much information is transferred by individual communications, child to child being a good example, especially in matters relating to sex. If we can reach enough individuals, perhaps we can improve *individual* communication so that it can have its own chain reaction in helping to spread knowledge.

Other Recommendations

Neither the Task Force nor anybody else knows precisely why syphilis is on the increase. We don't have all the answers. There is a critical lack of knowledge about the attitudes and habits of people who contract syphilis. Human behavior is involved, of course, but exactly what leads one child to a certain kind of behavior, while another acts in a different manner, we do not know. While we have the tools to control syphilis, to use them is cumbersome. No one views with delight the necessity of interviewing hundreds of people on an unpleasant subject. So we need enormously expanded research into human behavior, into mores, attitudes, motivations. It may help make some of our present methods obsolete, as we hope they will become.

We have praised our scientific armamentarium for the treatment of syphilis, and it is far better than the cruder methods we had a few decades ago. But we cannot say that the laboratories and scientists have done all that they can do. There is room for improved and greatly simplified methods of diagnosis of syphilis. We need to know more about prevention, about possible techniques for producing immunity to this disease. There is still work to be done in the laboratories, and we must see that it is done.

Conclusion

What then, do we really need?

First, it seems to me, a general awareness that this is a serious and worsening problem. We must sweep aside the atmosphere of blissful confidence that the challenge is going away. It isn't, and we all need to accept this, whether we are physicians, politicians, health officials, editors, parents, leaders of public opinion, teachers, or school children. More money will obviously be needed to stage a better battle.

Second, from general awareness we must move to cooperative effort based on understanding of the problem. The private physician cannot operate in isolation any more than can the local health department. Surely the behavioral aspect of the problem can be brought home to all, so that all will see the need for joining to do battle. As the problem is explained it will become increasingly understood that it cannot be handled on a fragmented basis. With all working together it will be hard enough.

Third, and this is really two points, we must realize that we are going to have to be tough in handling this problem. Injecting penicillin is simple. Finding the patients who need it is another problem. We will succeed only as we accept syphilis control as an exercise in human behavior extending far beyond the traditional limits of medicine. We will have to persuade, cajole, influence, pressure, legislate and argue to win this fight. We are going to have to make pests of ourselves. Unless we are willing to do this we might as well stop now. This is not a popularity contest but a rugged expedition into the realm of making people do what they may not want to do.

Fourth, we must search for new ways of doing things, from new ways of diagnosis and prevention to new ways of finding cases. We may say that our technique for the individual patient is good; what we need now is improved methods of dealing with patients in the mass, patients who are not known to us and patients many of whom do not know they need us.

I have talked about this country, but syphilis sees no boundaries. We all realize that. I believe that some parts of our program may be of value to you who come from other nations. World elimination of this sorry plague will come only from world action. Just as the private practitioner, injecting penicillin into those who come to him and stopping there, just as he cannot stem the tide of syphilis by himself, neither can any one country. But together, it is just possible that we can bring to a practical end the twisted history of this unattractive and twisted organism.

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Epidemiology—The Key to Venereal Syphilis Control

WARREN TOM DAVIS, Jr.

ABSTRACT

In syphilis there is no intermediate host: man is the reservoir of infection, the disease can be transmitted only by direct sexual contact, and hence no vector control is applicable. Also, there is no way of producing artificial immunity by vaccination. The best lead to the reservoir in a community is the ease at hand.

In 1961 of 16,000 patients interviewed in the United States, 96 percent named one or more contacts. It seems theoretically possible to find at some point the last case in the reservoir. The American eradication program is based on the premise that we can trace one case from another faster than the disease can be spread.

The most important single step in the epidemiological process is the interview of the infected patient for sex contacts. In the last 15 years much progress has been made in creating a psychological atmosphere conducive to eliciting information from patients.

Syphilis patients are usually very promiscuous, and the first interview does not always produce all names of contacts: a recent study demonstrated that for every 100 patients reinterviewed, 43 named additional contacts.

The practice of extending the interview to include friends and associates—"cluster testing"—significantly improves the epidemiological yield.

Contact and suspect follow-up is a complex and difficult task. In practice the investigator is armed only with the power of persuasion; he must use discretion and understanding. His mission involves working at night, over weekends, and on holidays.

Speed is essential in control follow-up in view of the great mobility of the American people and of highly promiscuous elements in it. Use of the telephone in transmitting vital epidemiological information is routine. Improvement in the follow-up process is shown by the fact that a few years ago we were able to locate less than 50 percent of sex contacts named. Today the figure is about 85.

Thirty-one million blood tests for syphilis are performed annually in the U.S.—a surveillance mechanism of great potential. Surveillance in the period when the end-point of eradication approaches, will be the fire alarm mechanism to indicate reintroduction of syphilis in the community.

The key to success in the eradication program is the recruitment and training of intelligent and aggressive personnel who will dedicate their untiring efforts to stick with the job until it is finished.

SOMMAIRE

Dans le cas de la syphilis, il n'existe pas d'hôte intermédiare: l'homme représente le réservoir d'infection; la maladie ne peut être transmise que par le contact sexuel direct; et de ce fait, aucun contrôle d'agent vecteur ne peut s'appliquer. D'autre part, il n'y a aucun moyen d'obtenir l'immunité artificielle par la vaccination. Le meilleur poteau indicateur du réservoir d'infection dans la communauté, c'est le malade sous la main.

En 1961, sur 16,000 malades interrogés aux Etats-Unis, 96 pourcent ont indiqué un ou plusieurs contacts. Il semblerait être théoriquement possible, à un point quelconque, de découvrir le dernier cas du réservoir. Le programme américain d'éradication se base sur la prémisse que nous pouvons dépister un cas à partir d'un autre plus vite que la maladie ne peut se répandre.

La mesure individuelle la plus importante dans le processus épidémiologique, c'est l'interrogation du malade infecté en vue de dépister ses contacts sexuels. Depuis 15 ans, un progrès considérable a été accompli dans le domaine de créer une ambiance psychologique propice à obtenir des renseignements des malades.

Les syphilitiques sont généralement très enclins à la promiscuité, et la première entrevue ne produit pas toujours tous les noms de contacts: une étude récente à ce sujet a indiqué que pour chaque centaine de malades réinterrogés, 43 ont nommé des contacts supplémentaires.

La pratique d'élargir l'interrogation afin de comprendre amis et associés—le "test par peloton"—augmente de façon marquante le rendement épidémiologique.

La poursuite des contacts et suspects est une tâche complexe et difficile. Pratiquement parlant, l'enquêteur n'est armé que de sa puissance de persuasion: il doit faire preuve de discrétion et d'entendement. Sa mission entraîne parfois de travailler la nuit, en fin de semaine, et aux jours fériés.

La rapidité est essentielle dans le contrôle du dépistage, en raison de la grande mobilité du peuple américain et de certains éléments fort enclins au libertinage qui y figurent. L'usage du téléphone pour la transmission d'informations épidémiologiques vitales est affaire de routine. Le progrès accompli dans le procédés de dépistage est démontré par le fait que, il y a quelques années, nous ne parvenions à trouver que moins de 50 pourcent des contacts sexuels indiqués. Le chiffre correspondant aujourd'hui est environ 85.

Trente-et-un millions de tests sanguins pour la syphilis sont administrés annuellement aux E.U., représentant un mécanisme de surveillance qui offre de grandes possibilités de surveillance. Cette surveillance, au

cours de la période où le but final de l'éradication est en vue, constituera un appareil de détection pour prévenir de la réintroduction de la syphilis dans une communauté.

La clé du succès dans le programme d'éradication, c'est le recrutement et la formation d'un personnel intelligent et dynamique qui ne ménagera pas ses efforts, mais au contraire persistera à la tâche jusqu'à son aboutissement.

RESUMEN

Para el contagio de la sífilis no hay intermediarios: el hombre es el receptáculo de la infección; la enfermedad puede contagiarse sólo por contacto sexual directo, de ahí que el control de insectos no es aplicable. Tampoco se puede inmunizar artificialmente por medio de vacunas. La mejor manera de llegar al origen en una población, es investigando los casos que se presenten.

En 1961, el 96% de 16.000 pacientes entrevistados en los Estados Unidos se refirieron a uno o más contactos. Teóricamente, parece posible dar con el receptáculo más reciente. El programa de erradicación estadounidense se basa en la premisa de que se puede seguir la pista de cada caso a través de otro, más rápidamente de lo que la enfermedad se propaga.

El paso más importante en el proceso epidemiológico es el de entrevistar al paciente para obtener los contactos sexuales que ha tenido. Durante los últimos 15 años se ha hecho mucho en crear una atmósfera psicológica, encaminada a obtener información de los pacientes.

Los enfermos de sífilis son por lo general muy promisecuos; no siempre se obtienen los nombres de los contactos durante la primera entrevista: un estudio reciente mostró que de cada 100 enfermos entrevistados, 43 de ellos nombraron otros contactos.

El beneficio epidemiológico mejora notablemente si se amplían las entrevistas, de manera que incluyan a amigos y a personas cercanas al enfermo, práctica que se llama "pruebas de grupos."

La continuidad de acción relacionada con el paciente y el contacto es una obra compleja y difícil. En la práctica, el investigador sólo está armado de su poder de persuación; debe ser discreto y comprensible. Su misión envuelve el que trabaje de noche, los fines de semana y en días festivos.

La rapidez en la continuidad de acción es primordial, en vista de la gran movilidad del pueblo estadounidense y de sus componentes grandemente promiscuos. El uso del teléfono para transmitir información epidemiológica vital, es de rutina. Se pueden apreciar mejoras en el proceso de continuidad de acción en el hecho de que hace unos cuantos años podimos localizar menos del 50% de los contactos sexuales dados en las referencias. Hoy en día se localiza el 85%.

Anualmente en los Estados Unidos se llevan a cabo 31 millones de análisis de sangre para la sífilis—un mecanismo de vigilancia de gran potencial. La vigilancia en el período cuando se está por acabar la erradicación, servirá de mecanismo de alarma para indicar que la sífilis ha vuelto a la población.

La clave para el éxito del programa de erradicación, radica en el reclutamiento y entrenamiento de un personal inteligente y pujante, que dedique sus incansables esfuerzos a permanecer en el trabajo hasta terminarlo.

I THINK IT WOULD be quite proper if we began our consideration of this topic by asking: What is epidemiology? What contribution has it made to public health? And how does it fit into current public health practice? Epidemiology, as the roots of the word suggest, is the science or study of how diseases spread amongst people. Fundamental to this science is the knowledge that certain diseases are communicable, a statement that is not so self-evident as it may sound. Think back for a moment to the cholera, plague, and yellow fever epidemics that for centuries periodically swept the world. The lack of understanding of the mode of disease transmission precluded the adoption of control measures that could be expected to effectively limit the spread of disease. So long as yellow fever was believed to emanate from a pile of rotting coffee—as was believed in the Philadelphia epidemic of 1793—proper control measures could never be instituted.

We shall forever be indebted to men like Pasteur and Koch for demonstrating that germs cause disease, and to men like Schaudinn and Hoffman for the identification of the *Treponema pallidum* as the causative agent of syphilis; and, of course, to August von Wassermann for the development of a serologic test capable of detecting the presence of antibodies of syphilis infection, and to a variety of other people, like Walter Reed for his work in yellow fever, for demonstrating the *mode* of transmission of communicable diseases.

Epidemiology is the sum of knowledge about disease etiology, source of infection, and method of transmission. It is this sum of knowledge which for other communicable diseases has led to water purification, rodent and insect control, sanitary waste disposal, and vaccination. Let us review this sum of knowledge with respect to syphilis and determine what the differences and similarities are.

In syphilis, there is no intermediate host; man is the reservoir of infection, and the disease is transmitted only by direct and intimate contact. Therefore, control cannot be conceived of in terms of control of vectors or intermediate hosts. The control of the disease must proceed directly from man himself. And, since at this time there is no method of producing immunity

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artificially, vaccination cannot be looked to as the key to control.

However, since syphilis is both an acute and a chronic disease with an incubation period longer than is evident in most acute communicable diseases and with its most damaging consequences occurring in the chronic stage long after initial infection, certain possibilities for control do suggest themselves.

Every syphilis case is the result of intimate sexual contact with another syphilis case. For persons in the infectious stage of the disease, this contact will have been relatively recent with another person likewise in the infectious stage. The best lead, therefore, to the reservoir in the community is the case at hand. Although the details of sexual encounter may be difficult to elicit, they are usually better remembered than the details of food consumption on which the epidemiology of some other comparatively slow incubating diseases is based.

In actual practice, we have found that trained venereal disease interviewers can, in fact, succeed in getting the infected patient to name persons with whom he has been sexually intimate. In 1961, for example, in the process of interviewing 16,000 primary and secondary syphilis patients, 96% of those interviewed named one or more sexual contacts. Since we have thus proved that a syphilis patient can be induced to name the persons with whom he has had intimate sex relations during the critical period of infection, it would seem theoretically possible that through a continuous chain, we should be able at some point in time to find the last case in the reservoir.

Our syphilis eradication program in the United States is based on the premise that, in fact, we can trace one case from another faster than the disease can be spread, and thus, through ever narrowing circles, reduce the syphilis prevalence, incidence, and potential for spread. We are confident that with speed and thoroughness in the application of proved control techniques, the techniques of practical syphilis epidemiology, this process will succeed.

Contact Interviewing

On what is this confidence based, you may ask. Let us briefly review the elements of syphilis epidemiology and their role in the eradication effort. The most important single step in the epidemiology process is the interview of an infected patient for his sex contacts. As practiced in this country, this procedure is a planned, controlled conversation between a trained practitioner of the art of venereal disease interviewing and an infected patient, designed specifically to elicit relevant information concerning all his sexual partners within the period of time that the patient could have acquired the disease or could have transmitted it to others. The interviewing procedure as now practiced is a vastly improved instrument for the elicitation of pertinent information over that of 15 years ago. In this intervening period, we have learned many things that have contributed to a better understanding of this vital process.

We have learned, for example, that the atmosphere pervading the interviewing situation must be one which reflects an aura of understanding and respect for the patient as a human being. It must be one that fosters confidence in the patient that what he tells the interviewer will be as confidential as what he tells his doctor or his lawyer.

We have learned that persons infected with syphilis are for the most part very promiscuous in their sexual behavior. This is evidenced by the fact that the average infectious syphilis patient seen in public clinics today will name four or more individuals with whom he or she has had intimate sexual relations during the critical period of infection.

We have learned that the first interview, no matter how successful it may first appear, does not always succeed in getting the patient to name *all* persons with whom he has been sexually involved during the critical period. This is quite understandable. For we must remember that to many individuals a syphilis infection is a traumatic experience, and for some at least there is great initial reluctance to divulge to a stranger his complete history of sexual intimacies, particularly when some or all of these experiences are extralegal, extramarital, or deviant in nature. Realizing that this situation does exist, experience has demonstrated that repeated interviews of the patient are productive in finding new cases of syphilis which would have otherwise escaped detection had only the initial interview been undertaken. A recent study demonstrated that for every 100 patients reinterviewed, 43 named additional contacts.

We have learned that promiscuous people are well aware of the sexual behavior of their friends and associates and that they can be encouraged to name persons who are members of their social group, who are likewise promiscuous, and may be having sexual relations with the person or persons with whom the infected patient has been intimate. In addition, they will

name persons who may have the same visible symptoms as the patient and who they feel would profit by an examination for syphilis. This process of extending the interviewing process to include friends and associates of the infected patient is known as "Cluster Testing" and whenever this technique is exploited, it significantly improves the epidemiologic yield.

It is now recommended that all contacts of infectious syphilis patients whether or not themselves infected be interviewed. These contacts have a vast store of knowledge about the sexual behavior of their social group and will divulge information about the sexual associates of infected patients that the patient either inadvertently or willfully failed to reveal when initially interviewed. In addition, these contacts may be a lead to other sexually related chains of infected persons.

Contact and Suspect Follow-up

In the Postal Service of this country, the slogan is: "Neither snow nor rain nor heat nor gloom of night stays these couriers from the swift completion of their appointed rounds." If this concept of devotion to duty and sense of urgency in expediting the public business, despite all obstacles, is applicable to a group of public servants involved with inanimate objects—mail pouch to mail box—consider how important such a philosophy is to persons engaged in the process of syphilis contact and suspect follow-up. It merits little to secure the names of persons likely to be infected with syphilis if we do not conduct an immediate and thorough follow-up of the persons so named.

The complex task of contact and suspect follow-up is a difficult one. Here the trained worker leaves the relative privacy and security of the interviewing room and enters the whole community. As a representative of the health department, he is charged with the responsibility not only to find and to bring to examination all those who have been named in the interviewing process but to perform these tasks in such a manner that will cause no embarrassment, no emotional trauma, or loss of community status to the individual being sought. And while he is theoretically armed with the power of health authority, he is in actual practice armed only with the power of persuasion. Since this is the case, the venereal disease worker must be always mindful of the need for discretion, diplomacy, tact, good judgment, human understanding, propriety, and respect for each individual's status in the community. That he must be patient yet eternally persistent in the pursuit of his task is axiomatic.

The job of contact and suspect follow-up is not one that conforms to the standard workday. Inasmuch as a great portion of our adult population are gainfully employed, usually between 7:00 a.m. and 6:00 p.m., we have found that visits made at the home of a contact or suspect during normal working hours find only the grandmother and pre-school age children at home. Moreover, teenagers out of school and unemployed are seldom at home either. Thus, if we are to find the people for whom we are urgently seeking, we must tailor our working hours to fit the habits and customs of our clients, which involves night details running considerably past midnight and including work on Saturdays, Sundays, and holidays.

We have found that one of the essential keys to success in contact follow-up is the speed with which it is accomplished. In this country today, our entire population is on the move and we get about this nation with fantastic rapidity. This year, more than 35 million Americans will change their place of residence, and as a part of this nation on wheels philosophy, Americans this year will travel in excess of 65 billion miles.

In view of this mobility of our population, and particularly the highly promiscuous elements in it, we have found that follow-up of a contact to an infectious syphilis case cannot wait. It must be done the moment the information is available, and for this reason we in this country have adopted as routine procedure the transmission of vital epidemiologic information by telephone.

Improvement in the follow-up process is evidenced by the fact that only a few years ago we were able to locate less than 50% of the sex contacts named. Today we are able to find and to bring to examination approximately 85% of all named contacts to infectious syphilis.

Surveillance

It is now a universally accepted procedure to confirm the presence or absence of syphilis in a patient by darkfield examination of the suspicious lesion and by the performance of a serologic test. A positive serologic finding will almost always indicate syphilis infection either past or present. In view of the fact that 31 million blood tests for syphilis are performed annually in the USA, we have at hand a surveillance mechanism of great potential. It is of utmost importance that all positive reactors be reported promptly by name of patient to the health department in order that immediate steps

may be taken to determine if a diagnosis of syphilis has been made and if infectious, secure permission to interview. Since the blood test will be positive for all secondary cases and for all primary cases, usually one week after the appearance of the initial chancre, this procedure will produce infectious as well as latent cases for follow-up.

Such a warning service is essential to the control of every communicable disease and is most urgent in the syphilis eradication effort. Surveillance in the period when the end point of eradication approaches, and particularly in areas that are already syphilis free, will be the fire alarm mechanism to signify the re-introduction of syphilis in the community.

People

And in closing, you may ask the very appropriate question—How is all this work to be done? I would remind you of the words of the late Felix J. Underwood, one of the foremost Public Health statesmen of this century, when he said on so many occasions: "The control and eradication of any disease depends on one firm principle of public health administration and it is this: Intelligent and aggressive manpower must be recruited, trained, and assigned to a specific disease entity in sufficient quantity and with no other responsibility but to pursue the goal set before them. No disease can be eradicated except by the full-time efforts of dedicated people who are willing to accept a single challenge and are endowed with the foresight, courage, enthusiasm, patience and the will to stick with the job until it is finished—people who are not swayed by the cynics, will not falter in the face of overwhelming odds, and people who above all, will not dismount the winning horse as it approaches the finish line." And in this admonition he pointed to the work of our own Dr. Joseph Goldberger, who despite the skepticism of his peers, working selflessly and unstintingly in Dr. Underwood's native State of Mississippi, discovered the cause of pellagra, and thus was responsible for the elimination of a disease that had sapped the health and vitality of the less fortunate in our republic for so many generations.

In the discharge of our responsibilities in the Federal service to assist the States and their political subdivisions in the eradication of syphilis, it is our intent and firm purpose to supply to them, within the resources made available by the Congress, the type, quantity and quality of manpower that is needed by the States to augment their own capable and energetic staffs, to the end that once and for all, Americans from all walks of life, from every social strata, and from every area of our extensive boundaries, can say with justifiable pride: This is one public health job that was finished. I have great confidence that this can be done, and I cherish the opportunity to be a part of this great humanitarian effort.

Problems Posed by Population Mobility in Control of Syphilis

JAMES F. DONOHUE

ABSTRACT

Frequent short-term travel and permanent long-distance movement are prevalent in American society today. Syphilis control aims at locating contacts of patients with primary and secondary syphilis; movement of patients and contacts makes this task more difficult.

In a study conducted in March 1962 it was found that 25 per cent of contacts named by patients lived away from the patients' cities or counties. The average distance between patient and distant contact was 300 miles. The geographic scope of mobility and distance between patients and contacts show the mutual importance of the various health departments' cooperating with one another. Epidemiologic communications are a most important element in the syphilis control program. Three factors affect the efficiency of the process: (1) locating information on the contact must be as accurate and complete as the interviewer can make it; (2) the information must be transmitted as rapidly and clearly as possible; (3) there must be rapid return communication to alert the original interviewer as to the results of the field investigation for evaluation of case epidemiology. The telephone is generally used.

A comparison with a similar study made in 1953 shows that the mobility of syphilitics is increasing.

The percentage of contacts examined decreases with the distance from the patient. But where contacts are located, the yield of syphilis found and brought to treatment per 100 contacts examined remains the same.

SOMMAIRE

Les fréquents voyages de courte durée et les déplacements permanents à grande distance sont caractéristiques de la société américaine de nos jours. Le contrôle de la syphilis ayant pour but de dépister les contacts de malades atteints de syphilis primaire ou secondaire, le mouvement des malades et de leurs contacts rend la tâche plus difficile.

Au cours d'une étude menée en mars 1962, il fut constaté que 25 pourcent des contacts indiqués par les malades résidaient en dehors des villes ou des comtés de domicile des malades. La distance moyenne entre malade et contact éloigné était de 300 milles. L'étendue géographique de la mobilité et de la distance entre les malades et les contacts démontre l'importance mutuelle de la coopération entre les différents services de santé.

Les communications épidémiologiques représentent un élément très important dans le programme de contrôle de la syphilis. Trois facteurs affectent l'efficacité du processus: (1) l'interrogateur doit donner les renseignements en vue de repérer le contact d'une façon aussi exacte et complète que possible; (2) ces renseignements doivent être transmis aussi rapidement et aussi clairement que possible, (3) il doit y avoir un retour rapide de communication afin d'indiquer à l'interrogateur original les résultats de l'enquête en vue d'évaluer l'épidémiologie du cas. L'usage du téléphone est général pour ces communications.

Une comparaison avec une étude analogue entreprise en 1953 indique que la mobilité des syphilitiques va en augmentant.

Le pourcentage des contacts examinés décroît en raison de la distance du malade. Là, dependant, où les contacts sont repérés, la proportion des cas de syphilis découverts et traités pour chaque 100 contacts examinés demeure identique.

RESUMEN

La población americana hoy día emprende a menudo viajes de corta duración, o viaja largas distancias con el fin de establecerse permanentemente en otra comunidad. Puesto que el control de la sífilis requiere la localización de los contactos de pacientes que han contraido sífilis primaria o secundaria, el movimiento constante de pacientes y contactos dificulta esta tarea.

En una investigación realizada en marzo de 1962 se comprobó que de los contactos mencionados por los pacientes, 25% vivia lejos de las ciudades y condados de donde procedían los pacientes. El promedio de la distancia entre paciente y contacto era de 300 millas. El alcance geográfico del movimiento y la distancia entre pacientes y contactos demuestra cuán importante es la cooperación entre los distintos departamentos de salud. Las notificaciones epidemiológicas constituyen un elemento esencial para controlar la sífilis. Existen tres factores que influyen en la eficacia del procedimiento: (1) la información sobre el contacto debe ser lo más exacta que el investigador pueda obtener; (2) es necesario transmitir la información clara, por el medio más rápido posible, al evaluar un caso epidemiológico; (3) la contestación sobre el resultado de la investigación de campo se le debe enviar al investigador por la vía más rápida. Generalmente se usa la vía telefónica.

La comparación que se hizo con un estudio similar realizado en 1953 demostró que el movimiento de casos sifilíticos va en aumento.

A medida que aumenta la distancia entre paciente y contacto, disminuye el porcentaje de contactos examinados. Sin embargo, en lugares donde se han localizado los contactos, el número de casos de sífilis que se encontraron y trataron, por 100 contactos, permanece igual.

FREQUENT SHORT-TERM travel and permanent long-distance movement of people are prevalent characteristics of today's American culture. There is freedom of internal movement in the United States by the very nature of our democratic way of life. Although this paper will not discuss mobility of the general population, the mobility phase of the infectious syphilis population is examined as a problem.

The syphilis control program in the United States is directed toward finding contacts to patients with primary and secondary syphilis and bringing them to examination and treatment. We think of geographic mobility as a problem when it affects our success in bringing infectious syphilis contacts to examination. Movement of patients and contacts between local health jurisdictions within a state, as well as movement of persons between states, poses problems in syphilis epidemiology.

Cooperative Study, March 1962

To determine the current mobility problem in syphilis epidemiology, a cooperative study among 48 of the 50 State Venereal Disease Control Programs and the Venereal Disease Branch of the Communicable Disease Center was conducted during March of this year. This study was limited to a one-month period since previous data indicated no significant monthly variation in the proportion of primary and secondary syphilis patients naming out-of-city contacts.

In this study, we measured mobility in terms of infectious syphilis sex contacts living outside the city or county health jurisdiction where the patient lived. In this sense, mobility represents a difference in geographic location between the patient and contact at the time of interview. The geographic centers of the city or county health jurisdictions where the patient and the contact lived were used to approximate the distances. When the patient and the contact resided in the same city or county health jurisdiction, the distance was considered zero miles. Therefore, all data related to distance in miles are minimal. When the residence of the contact was in another country, the national capital of that country was used to approximate the distance, with the exceptions of Mexico and Canada.

The 1,492 infectious syphilis patients naming sex contacts during March, 1962 served as the base for this study. Incidentally, the 1,492 cases are purely coincidental to the geographic mobility theory that in 1492 the crew of Columbus contracted syphilis in the New World and carried syphilis back to the Old World.

Contacts Outside Patient's City of Residence

There were no significant differences between cases reported by clinics and cases reported by private physicians with respect to mobility of their named sex contacts. Twenty-five percent of the total contacts named by the study patients lived out of the city or county where the patient lived. Where mobility is involved, the average distance between the residence of the contact and the residence of the patient was 300 miles. (Figure 1.) Thirteen percent of the total contacts lived outside the city but less than 100 miles away; 6% lived a distance of 100 to 500 miles; 3% lived a distance of 500 to 1,000 miles; and 2% lived a distance of more than 1,000 miles. One percent of the contacts lived in other countries.

Scope and Direction of Movement

To give you an idea of the geographic scope and direction of movement within the United States between the residence of the patient and the residence of the out-of-city contacts during the one-month study period, the following selected maps are presented for contacts living a distance of more than 50 miles from the patient—first, for patients living in communities of less than 50,000 population and, then, for patients living in cities of one million or more population. (Figure 2.) The lines on this map indicate the movement between patients and out-of-city contacts named by patients living in communities of less than 50,000 population. This illustration presents contacts named by primary and secondary syphilis patients in small cities. These contacts were not necessarily located or found to be infected. The movement appears to be more of a north-south than an east-west pattern. The pattern of out-of-city contacts for patients living in cities of between 50,000 to one million population gradually shifts to the more diffuse pattern shown in Fig-

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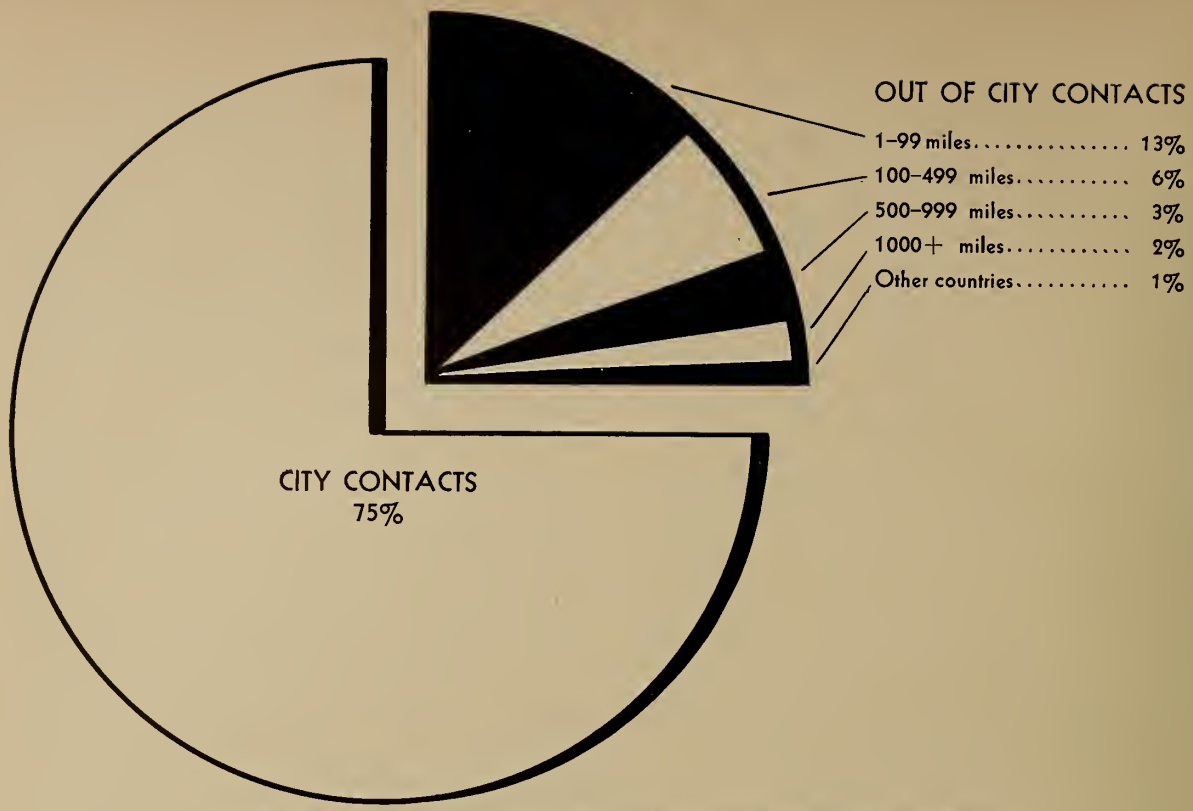

Figure 1. Percentage distribution of residence of contacts by distance from patients

Figure 2. Residence of out-of-city sex contacts named by infectious syphilis patients in communities of less than 50,000 population, March 1962 (for distances more than 50 miles)

ure 3. This map presents the coast-to-coast movement between patients and contacts named by patients living in the five cities with a population of over one million; that is, the cities of New York, Chicago, Los Angeles, Philadelphia, and Detroit.

The geographic scope of the mobility and distance of syphilis patients and contacts certainly points up the mutual importance of local health departments in the same state, and health departments between states, working effectively with each other in exchanging infectious syphilis epidemiologic information.

Intra-State Contact Reports

In developing and improving the transmission of venereal disease contact information in the United States, we have come to realize that epidemiologic communications are a most important component of the syphilis control program and that the faster the exchange of information is completed, the more rapidly the spread of infection is prevented.

Three factors affecting the efficiency of the process have become evident: (1) the locating information on the contact must be as accurate and complete as the interviewer can make it; (2) the information must be transmitted as rapidly and clearly as possible; (3) there must be rapid return communications to alert the original interviewer to the results of field investigation for evaluation of case epidemiology.

We recognize that the State Health Department is the keystone of the rapid exchange of epidemiologic information in the United States. Our experience indicates that most State Health Departments exchange information and return dispositions promptly on infectious syphilis contact reports received from other states. At the present time, the majority of infectious syphilis contact information is initially transmitted between local health departments and between State Health Departments by telephone. Recently, a contact of a secondary syphilis case was located, brought to examination, and found to be infected in another state 1,000 miles away within four hours of the interview. This result was immediately transmitted to the original state by telephone.

Patients in 35 of the 41 states reporting primary and secondary syphilis in March named contacts living in other states. An average of 13% of the total contacts named was referred

Figure 3. Residence of out-of-city sex contacts named by infectious syphilis patients in cities of 1,000,000 or more population, March 1962 (for distances more than 50 miles)

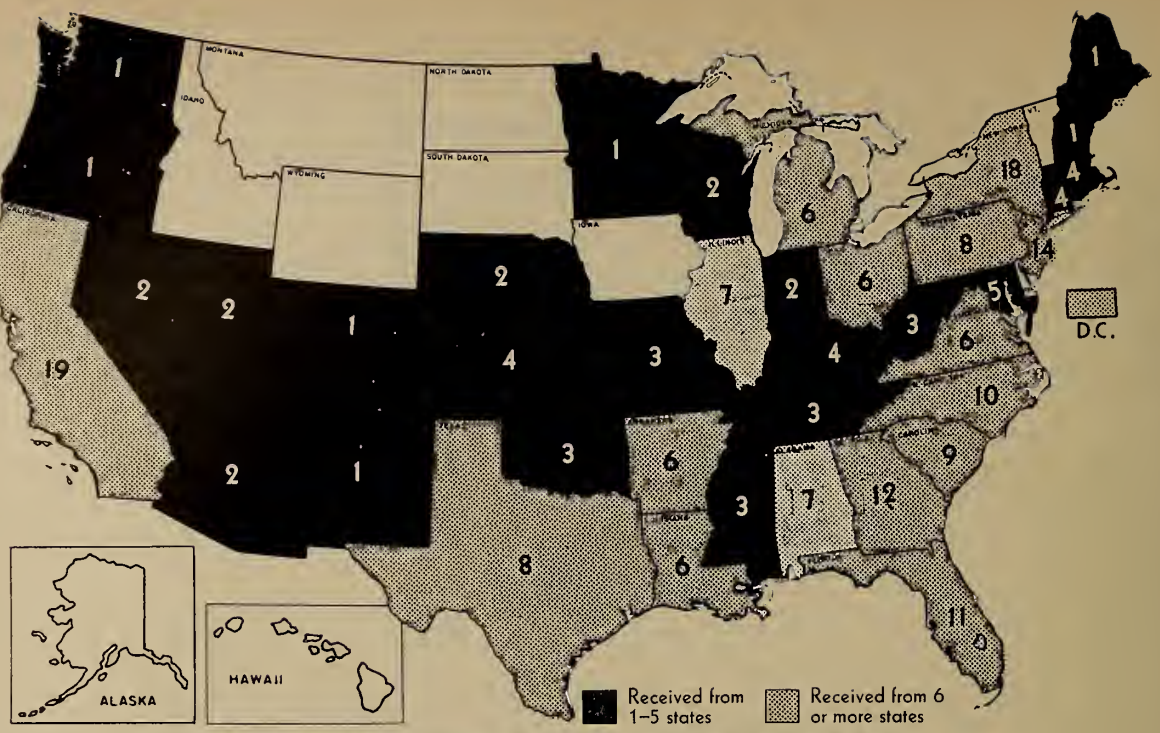

Figure 4. States receiving contacts of infectious syphilis from other States, March 1962

to other states for investigation. In an unpublished study done in 1953, only 8.8% of the contacts lived out-of-state. This suggests that mobility among the syphilis-prone population is increasing.

A significant correlation exists between states referring contact reports and states receiving contact reports. Forty states received contact reports from 35 states referring such reports. On the average, these 40 states received contact reports of infectious syphilis from four other states. The numbers shown on Figure 4 refer to the number of different states sending in contact reports and not the number of contacts referred. California and New York received contact reports from 19 and 18 different states, respectively. New Jersey, Georgia, Florida, and North Carolina received contact reports from 10 or more states. With the exception of California in the West, the geographic concentration of these states is along the Eastern seaboard, states bordering the Great Lakes, and in the southern tier of states. The number of states involved in the exchange of contact information suggests the need for national coordination on this particular phase of the syphilis control program, particularly in view of the following problems.

For both clinic and private physician patients, the percent of infectious syphilis contacts examined decreases significantly and consistently with the distance that the contact lives from the patient (Figure 5). For contacts living in the same city as the patient, 81% were examined; for contacts living between 500 and 1,000 miles, 63% were examined. This decreased to 57% for contacts living between 1,000 and 2,000 miles from the patient. And, for contacts living over 2,000 miles from the patient, but within the United States, only 44% were examined.

In spite of the decreasing percent of contacts examined with increasing distance, the yield of syphilis—that is, the number of contacts

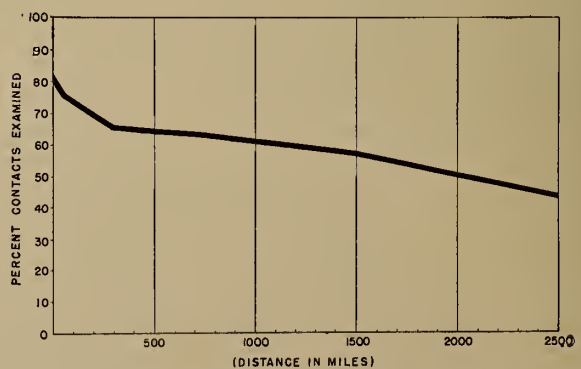

Figure 5. Percent contacts examined decreases with distance contact lives from patient

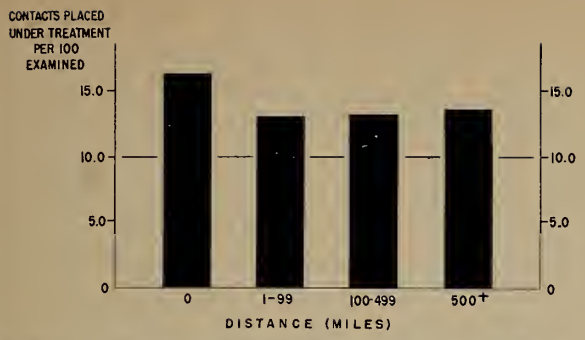

Figure 6. Yield of syphilis per 100 contacts examined by distance between residence of patient and contact

brought to treatment per 100 contacts examined, does not vary significantly with distance for contacts of either clinic or private physician cases.

The yield in cases of syphilis was 14 for contacts living 500 miles or more from the residence of the patient, as compared to 16 cases of syphilis for contacts living in the same city as the patient (Figure 6). Likewise, for contacts living out of the city but less than 500 miles away, as shown in the two middle bars of this chart, the yield was 13 cases of syphilis per 100 contacts examined.

Inter-City Contact Tracing

These data seem to indicate that contact tracing involving a considerable distance between the contact and the patient is a relatively rich source of syphilis in the total program of syphilis epidemiology in the United States. We think that the percent examined problem with respect to out-of-city contacts may be improved by the use of the re-interview as a regular part of contact tracing. The re-interview serves to obtain additional locating information on contacts named during the original interview who were not located, as well as to elicit additional contacts when none of the examined contacts named during the original interview is infected. Consequently, it is of paramount importance that dispositions on all contacts living in and out of the city be processed rapidly before the re-interview to improve the out-of-city contact tracing results. Figure 7 presents the productiveness of out-of-city epidemiology, despite the problem of distance affecting the percentage of out-of-city contacts examined. This map shows the scope, direction, and distances between patients and out-of-city contacts infected with syphilis and placed under treatment during the

Figure 7. Residence of all out-of-city contacts placed under treatment in relation to residence of patients in United States, March 1962 (for distances more than 50 miles)

study period. We think that the inter-city contact tracing process is one of the most powerful tools to break many of the remaining chains of infection in the United States.

Global Scope of Syphilis Mobility

In addition to internal mobility within the United States, 1% of the contacts named during the study period lived in other countries. This study was not designed to evaluate the international phase of mobility but, in the study period of only one month, contacts were reported to reside in 17 foreign countries, mostly in the Americas and Europe. About half of these contacts were named by patients diagnosed and treated in New York City.

To give you an idea of the global scope of syphilis mobility, we reviewed last year's international syphilis contact data emanating from New York City (Figure 8). During the fiscal year ending June 30, 1962, the City of New York Health Department referred 119 infectious syphilis contact reports to 32 different countries or islands throughout the world. Figure 8 indicates that countries in every continent of the world were involved.

Summary

In summary, this study has found that in the United States: (1) mobility poses a significant problem in the control of early syphilis; (2) the percentage of named contacts located and examined decreases as the distance from the residence of the patient increases; but, (3) if the contacts are located, the yield of syphilis found and brought to treatment per 100 contacts examined is the same regardless of distance or mobility. The challenge ahead is clearly defined. We must take advantage of out-of-city contacts and consider them as casefinding opportunities rather than casefinding problems. We should strive to improve our ability to obtain complete identifying and locating information on each contact. We should strive to transmit this information clearly and rapidly, and we should strive to locate and bring to examination a much higher percentage of out-of-city contacts than we are presently doing.

Problems posed by population mobility in the international control of syphilis may increase as the speed and volume of international travel increase. As eradication programs progress throughout the world in the future, we hope that the international reporting of syphilis cases and exchange of contact information may share the responsibility and reward for alerting the individual, his community, and his country to the presence of syphilis and for providing the opportunity to eradicate this disease.

Figure 8. Countries of residence of sex contacts named by patients in New York City, fiscal year 1962

Responsibility of Public Health in a Program for Syphilis Eradication

MALCOLM H. MERRILL, M.D.

ABSTRACT

Venereal disease control officers were assigned to the American Expeditionary Force in France during World War I, and the rate dropped to nearly half of the preceding peace-time incidence.

The Conference on Venereal Disease Control in 1936 was influential in the passage of the Venereal Disease Act of 1938, which re-established Federal grants-in-aid for the purpose of finding, treating and controlling venereal disease.

The introduction of penicillin for treatment and the venereal disease investigator for case and contact finding paved the way for a cooperative effort between the practicing physician and the public health department.

The Task Force, appointed by the Surgeon General in 1961, recommended the following: That an effort be made to enlist the private physician and his professional societies in the control effort; that all laboratories report all positive blood tests to the appropriate health department; that current interview-investigation services be intensified; that a dynamic education program be developed for the public and professional workers; that research in immunology, therapy and laboratory diagnosis of syphilis be continued; and that budgetary support for the program be continued long after the reported infectious syphilis morbidity curve begins to go down.

To employ the additional personnel necessary to visit physicians, follow-up laboratory reports and intensify interview-investigation, the Task Force estimates that $3,500,000 more than presently available will be needed. It is suggested that $500,000 be allocated for educational purposes.

SOMMAIRE

Pendant la première Guerre Mondiale, des officiers du contrôle des maladies vénériennes furent affectés au Corps Expéditionnaire Américain en France, et le taux de ces maladies diminua de près de la moitié par rapport à la période de paix qui avait précédé.

La Conférence sur le contrôle des Maladies Vénériennes, en 1936, eut une influence sur l'adoption du décret de 1938 concernant ces maladies et rétablissant les subventions fédérales dans le but de déceler, traiter et contrôler les dites maladies.

L'introduction de la pénicilline comme traitement et l'enquêteur chargé de déceler les syphilitiques ainsi que ceux avec qui ils sont en contact, ont ouvert la voie à un effort coopératif entre le praticien et le département de la Santé Publique.

Le Détachement Spécial, désigné par le Médecin Général en 1961, recommanda ce qui suit: qu'un effort soit fait pour engager le médecin privé, ainsi que ses organisations professionelles, dans cette tâche de contrôle; que tous les laboratoires signalent tous les résultats positifs des examens du sang au service intéressé de la Santé; que les services courants d'enquête par entrevue personelle soient intensifiés; qu'un programme dynamique d'éducation soit développé à l'intention des travailleurs publics et professionnels; que la recherche concernant l'immunologie, la thérapie, et le diagnostic de la syphilis en laboratoire soient poursuivis; et que l'appui budgétaire pour le programme en question soit continué longtemps après que la courbe de morbidité de la syphilis infectieuse aura commencé de descendre.

Pour employer le personnel additionnel nécessaire pour visiter les médecins, suivre de près les rapports des laboratoires et intensifier les enquêtes par entrevues personnelles, le Détachement Spécial estime que 3,500,000 dollars devront être ajoutés au budget actuellement disponible. Il est suggéré que 500,000 dollars soient affectés à des buts éducationnels.

RESUMEN

Durante la Primera Guerra Mundial, al asignarse funcionarios responsables del control de las enfermedades venéreas a las Fuerzas Expedicionarias Americanas en Francia, la tasa de incidencia de la enfermedad disminuyó a casi la mitad de la registrada en el periodo de paz inmediatamente precedente.

La Conferencia sobre el Control de las Enfermedades Venéreas celebrada en 1936 influyó considerablemente en la aprobación de la Ley de las Enfermedades Venéreas de 1938, en virtud de la cual se concedieron nuevamente asignaciones federales destinadas a descubrir, tratar y controlar las enfermedades venéreas.

La introducción de la penicilina para el tratamiento de las enfermedades venéreas y del investigador para descubrir los casos y los contactos correspondientes preparó el camino para desarrollar un esfuerzo cooperativo entre el médico y el servicio de salud pública.

El Grupo Especial designado por el Director de Servicios Médicos en 1961, formuló las siguientes recomendaciones: que se realice un esfuerzo para lo-

grar la cooperación de los médicos particulares y de sus asociaciones profesionales en las labores de control; que todos los laboratorios reporten al departamento de salud correspondiente todos los análisis de sangre que den resultado positivo; que se intensifiquen los actuales servicios de entrevistas e investigación; que se desarrolle un dinámico programa de divulgación para el público y los trabajadores profesionales; que se continúen las investigaciones en materia de inmunología, tratamiento y diagnóstico de laboratorio de la sífilis y que se continúe prestando respaldo presupuestario al programa aún mucho después que la curva de morbilidad de los casos reportados de sífilis infecciosa comience a disminuir.

El Grupo Especial calcula que serán necesarios EU $3,500,000 más de lo que se dispone en la actualidad para contratar el personal adicional necesario para visitar los médicos, seguir el desarrollo de los informes de los laboratorios e intensificar las entrevistas e investigaciones. Se sugiere asimismo que se asignen EU $500,000 para fines educativos.

THE RESPONSIBILITY of public health in a program for syphilis eradication will become evident if one considers what already has been done and what else should have been attempted to control the disease. A brief review will emphasize the fact that much of the current knowledge about syphilis is of very recent origin and, for this reason, only a relatively short time has actually been devoted to effective control measures.

Although syphilis has been a major world public health problem since the Sixteenth Century, its causative agent was not described until 1905, a laboratory diagnostic test was not available until 1906, and the first specific therapeutic agent was not formulated until 1910. It is not surprising, therefore, that public health did not have much of a role to play before these discoveries were made. Actually, it was World War I which thrust the public health worker into venereal disease control, both from the military as well as the civilian point of view.

V.D. Incidence in U.S. Wars

United States military records provide venereal disease incidence data during five wars. In the first two of these, the Mexican and Civil War, the annual rates per 1,000 troops followed similar patterns. They doubled from a peacetime rate of about 80 and then receded to a comparable level when hostilities ceased. In the Spanish-American War, the same phenomenon was observed except that the subsequent peacetime drop was delayed for about 10 years. During these wars, and in the periods between them, no special venereal disease control measures were carried out by either the military or civilian authorities.

The situation in World War I was somewhat different. Clinical syphilis was responsible for the rejection of about one draftee out of every 100 and the armed forces, for the first time, took drastic steps to protect the men under their direction. Among other efforts, specially trained venereal disease control officers were assigned to the American Expeditionary Force in France in a ratio of one to each 10,000 troop strength. Instead of doubling, as in previous wars, the venereal disease rate dropped to nearly half of the preceding peacetime incidence, even though initially it had shown a brief rise.

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Chamberlain-Kahn Act of 1918

On the civilian side, Congress, stimulated by the high rejection rate of draftees with venereal disease, passed the Chamberlain-Kahn Act of 1918, which created a Division of Venereal Disease Control in the United States Public Health Service and provided the first Federal grant-in-aid program for public health. These grants were primarily for the purpose of establishing venereal disease clinics and by 1920 there were 237 of them in operation.

Following the armistice, demobilization of the military and naval forces brought about a virtual disappearance of the armed forces venereal disease control efforts and by 1926 the Federal Government had terminated its aid to States for venereal disease control clinics. In that same year, a Public Health Service Officer, Dr. Thomas Parran, was appointed Chief of the Service's Division of Venereal Disease Control. It was he, who, as Surgeon General of that Service in 1936, called the first National Conference on Venereal Disease Control which recommended:

"First, every early case must be located, reported, its source ascertained, and all contacts followed up to find possible infection. Second, enough money, drugs, and doctors must be secured to make treatment possible in all cases; it is not in the public interest for treatment, which is our most practical means of control, to be retarded or precluded by cost. Third, both public health agencies and private physicians throughout the country must be aligned to form a united front and re-educated to use scientific modern methods in their joint fight against syphilis. In addition, citizens must be informed as to means and methods required for individual and public protection."

V.D. Act of 1938

This Conference statement, as applicable today as it was in 1936, together with the Public Health Service's educational effort to awaken the public and the public health world to the dangers of venereal disease, and combined with the threat of a new war in Europe, eventually led to the passage of the Venereal Disease Act of 1938, which re-established Federal grants-in-aid for the purpose of finding, treating and controlling venereal disease.

V.D. During World War II

In World War II, routine serologic tests were performed on all selectees and the first two million men showed an overall rate of 47.7 per 1,000 with evidence of syphilis, but only 1.4 per 1,000 exhibited clinically apparent syphilis. As a result, about one-seventh as many men per 1,000 were rejected because of syphilis as compared to those turned down in World War I. During the war, military venereal disease rates exhibited a downward trend until 1945 when they rose rapidly.

Civilian syphilis in the United States, which had maintained a plateau around 3.7 cases per 1,000 between 1938 and 1942, reached a peak of 4.5 per 1,000 in 1943 and then began a decline which continued for 12 years. This decrease reflected the introduction of penicillin as the therapeutic agent of choice following the demonstration in 1943 by Dr. John Mahoney that this antibiotic was effective against syphilis. It probably also reflects the results obtained in some 65 Rapid Treatment Centers established by the Public Health Service in cooperation with State Health Departments. By 1947, these centers were treating 185,000 cases per year. Simultaneously, added emphasis was being given to syphilis control by State and local health departments throughout the country.

V.D. Investigators

The 1940's witnessed another development which was to prove extremely valuable in the control of syphilis. This was the introduction of a new public health professional, the venereal disease investigator. His specialty was in interviewing patients with venereal disease and determining from whom the disease had been obtained and to whom it had been given since it was acquired. These two developments, penicillin for treatment and the venereal disease investigator for case and contact finding, paved the way for a cooperative effort between the practicing physician and the public health department. Much of the treatment then reverted to the former while the majority of the epidemiology was carried out by the latter.

The steady decline in infectious syphilis between 1947 and 1955 led to a general relaxation of effort and growing hopes that the disease would be eliminated as a public health problem. The events since 1955, however, with a steady increase in infectious syphilis and the 1961 reversal of the downward trend in latent syphilis, have not fulfilled those hopes but, instead, have given public health workers and the medical profession a great deal of cause for concern.

The overoptimism of the late 1940's and early 1950's was reflected throughout the country by decreasing Federal appropriations as well as lessened interest on the parts of State and local health departments. Venereal disease control nearly became another victim of the myth that all communicable disease had been conquered and all that one had to worry about now was chronic disease.

Task Force, 1961

In 1961, a Task Force was appointed by the Surgeon General of the Public Health Service "to evaluate present efforts to control syphilis and to recommend principles and methods that will make it possible to establish a time table leading to the eradication of syphilis as a public health problem." Creation of the Task Force was a direct result of a comment by the House Appropriations Committee in 1961 which stated: "Syphilis is easily detected and in the early stages treatment is successful and not difficult. This is a disease that ought to be eliminated in the United States. The Committee will expect the Public Health Service to have recommendations for an effective program when hearings are held next year."

The Task Force report expressed alarm at: (1) the spread of syphilis, especially among teenagers; (2) the fact that actual cases occurring far outnumbered the cases reported; (3) the evidence that effective techniques of control and therapy to stop the spread of syphilis are available but not applied widely enough; and (4) the evidence that unless a vigorous, stepped-up program is inaugurated now, the increased spread of syphilis currently being observed might be accelerated.

The Task Force recommended: (1) that an intensive effort be made to enlist the private physician and his professional societies and associations in the control effort; (2) that a program be initiated to insure that all laboratories

processing blood tests for syphilis report all positive specimens to the appropriate health department; (3) that current interview-investigation services be intensified and extended to cover all infectious syphilis cases and that every such case be interviewed and re-interviewed for sex contacts; (4) that a comprehensive and dynamic education program be developed for professional workers as well as for the public; (5) that research in the immunology, therapy and laboratory diagnosis of syphilis be continued and studies of adolescent and young adult sex behaviour be greatly expanded; and (6) that budgetary support for the program be continued long after the reported infectious syphilis morbidity curve begins to go down.

The Task Force believed that if its recommendations were adopted and put into full effect by 1963, the epidemic spread of syphilis in this country could be stopped within 10 years. It also thonght that world-wide eradication was a proper goal, without which no State or nation could remain secure in its own efforts to control syphilis.

V.D. Conference Recommendations, 1936

For a moment, before further consideration of the recommendations of the Task Force, let us return to the 1936 recommendations of the First National Conference on Venereal Disease and discuss how well those have been implemented. In regard to locating, reporting and ascertaining the source and contacts of every early case, this has been demonstrated to be an effective mechanism on a national basis. The only difficulty has been that these procedures have never been applied to a large enough percentage of early cases. The routine blood testing of millions of selectees in World War II provided a fairly good estimate of the extent of the problem in this country, and routine screening procedures for pre-natal care, pre-marital and pre-employment requirements, and hospital admission give clues to cases not otherwise available. Some 31,000,000 blood specimens of these types are processed annually and about 1,200,000 are reactive. In 1961, almost 18% of the cases of infectious syphilis were discovered as a result of following-up of reactive laboratory tests. Such investigation can not be done on reactive tests which are not reported, and at the present time less than three-quarters of those are called to the attention of public health departments.

Reporting of cases of infections syphilis, or rather the lack of reporting, is a serions handicap to the health department in its investigation program. This situation is improving; physicians are now believed to be reporting about half of the cases they see and treat as compared to only 25% a few years ago. Since private physicians reported over 6.000 cases in 1961, this means that there was an equal number not reported. The fact that physicians do not report all their cases is a serious reflection on the public health department's ability to convince them of the importance of doing so.

Interviewing early cases to ascertain the source of the infection and the subsequent contacts is extremely important if the chain of infection is to be broken. However, in 1961 while 99.5% of 12,605 patients treated and reported from clinics were interviewed, only 80% of 6,167 patients treated and reported by private physicians were interviewed. This means that nearly 1,400 patients treated and reported were not interviewed. Add to these the 6,000 cases treated by private physicians but not reported and therefore not interviewed and it is obvious that there is a large uncontrolled reservoir of infection which is not being investigated.

The second recommendation of the 1936 Conference was that enough money, drugs, and doctors must be secured to make treatment possible in all cases. In this connection, one must remember that 1936 was at the tail-end of the great depression, and venereal disease was more of a responsibility of public treatment facilities in those days. In recent years, the economic situation has improved to the extent that there is little difficulty in obtaining treatment today either by a private physician or in one of the 2,300 public clinics in this country. The cost of treatment is not a basic hindrance. Rather, finding and bringing the case to treatment is the essential problem today.

Lack of implementation of the third recommendation, that both public agencies and private physicians throughont the conntry must be aligned to form a united front, represents, in my opinion, the greatest failure in venereal disease control. It must be obvions that neither the medical profession nor the public health departments are capable of combatting venereal disease alone without the assistance of the other. Failure to work together can only result in failure to control, let alone eradicate venereal disease.

Finally, the admonition of the 1936 Conference to inform citizens as to means and methods required for individnal and public protection, has never been carried out as well as it might have been. This is a continuing responsibility in which the commmnity itself must take

part, if its members are to be kept from being ignorant of venereal disease and its consequences.

Task Force Recommendations

The steps taken to implement the recommendations of the 1936 Conference were inadequate. Now we are confronted with an alarming increase in venereal disease, sufficient to bring about the appointment of a Task Force to prepare action recommended against syphilis. Is there any reason to believe that we shall carry out their six recommendations in any more efficient manner than we did in regard to the recommendations of the 1936 Conference? If we can implement them then we have a good chance of eradicating syphilis. If we cannot, then we shall have to learn to live with this disease indefinitely.

It is significant that the first recommendation of the Task Force is to enlist the private physician and his professional societies and associations in the control effort. It is recommended that this be done by public health personnel making at least two visits a year to the 100,000 general practitioners who treat the majority of the cases occurring, and at least one visit a year to the other 130,000 physicians who occasionally see and treat cases. The purpose of these visits is to explain to each physician how the program works, to enlist his cooperation in reporting all cases, and to obtain his permission for the public health department to interview all his patients. If the public health department can carry out this physician visitation program, then public health agencies and private physicians really could be aligned to form a united front. In California, pilot projects have shown that reporting does increase and that physicians do permit a greater percentage of their patients to be interviewed after such visits have been made.

The second recommendation of the Task Force concerns the responsibility of the clinical laboratory to notify the public health department whenever it processes a test which results in evidence suggestive of syphilis. As stated above, this mechanism can provide a great deal of information to the public health department which is not available from any other source. Some 15 states now have legal requirements of this nature and about 20 more are presently considering their adoption. California instituted such a regulation this year and it is hoped that this will prove to be a valuable mechanism in helping to get better reporting, greater case-finding and higher percentage of cases of infectious syphilis brought to treatment and interviewed for contacts.

The third recommendation concerns intensification and extension of the current interview-investigation services for all infectious syphilis. It emphasizes that re-interviews be carried out for the simple reason that experience has shown that a second interview frequently produces contacts not obtained during the first interview. It points out the value of "cluster testing," the technique of getting patients to name friends and acquaintances with sexual habits similar to their own who might benefit by an examination for syphilis. In a nation-wide evaluation of the application of this method to 5,500 patients with infectious syphilis, the Public Health Service noted that 2,000 cases of infectious syphilis were found among their sexual contacts, and an additional 500 discovered by use of cluster testing. Interviewing, re-interviewing and cluster testing take a great deal of time which the practicing physician cannot afford. Provision of this service to him and his patients must be the responsibility of public health.

The fourth recommendation concerns education of professional workers as well as the general public. Public health has to assume the task of maintaining the educational standards of its own professional personnel. It can use the physician-visitation program as an effective opportunity to keep the medical profession up to date on scientific diagnostic and treatment procedures and to emphasize the importance of the administrative mechanisms used in case finding and contact tracing. Education of professional workers is a never-ending process but a relatively simple one when compared with the task recommended for education of the general public. This latter should be aimed particularly at persons in the younger age groups most likely to contract venereal disease. It requires cooperation from churches, schools, service clubs and must use all of the mass media available. This will not reach its maximum effectiveness until the day when venereal disease educational material becomes incorporated into the curriculum of every school in the country. Public health should provide the leadership in this area of educational activity.

The fifth recommendation concerns research necessary to provide better knowledge of the immunology of syphilis, to improve diagnostic and treatment methods, and to create a basis for the recommended programs of education. Public health must provide the stimulus and assure the availability of research resources to carry out this recommended action.

Finally, the Task Force, in its sixth recommendation, makes a plea that all financial support be maintained long after the reported infectious syphilis morbidity curve begins to drop. When cases become rare, the cost per case increases tremendously and pressure usually arises to decrease expenditures. Experience has shown, however, that this is precisely the time to maintain active effort. A decreasing budget and a diminishing interest can only lead to resurgence of the disease, and if this happens before the last infectious case is found and treated, syphilis will not be eradicated.

To employ the additional personnel necessary to visit physicians, follow-up laboratory reports and intensify interview-investigation, the Task Force estimates that, for the United States, $3,500,000 more than presently available will be needed. To promote educational programs, it is suggested that $500,000 be allocated to initiate the behavioral studies upon which to base such programs in this country.

It is of interest to note the similarity between the recommendations of the 1936 Conference and those of the Task Force. Both emphasized the necessity of securing the cooperation of the private physician; both advocated steps to discover every early case, its source and all its contacts; both considered the importance of education in a national program, not only for the professional workers involved, but for the general public as well; and both were concerned with provision of adequate funds with which to do the job.

Major elements of the role of public health departments in the control of syphilis were formulated in 1936. These have been redefined and made more specific by the 1961 recommendations of the Task Force. Experience has demonstrated that sporadic and partial employment of effective techniques must now be replaced by long continued intensive application. The federal, state and local health departments must furnish the leadership and serve as the stimulating, coordinating and service agencies in this campaign, if the goal of syphilis eradication is to be achieved.

Health Department Responsibilities to Medical Schools

BRUCE P. WEBSTER, M.D.

ABSTRACT

For some years syphilis education has been greatly neglected in the programs of the American medical schools. This is partly due to the complacency engendered by quick and easy penicillin therapy, which caused a rapid drop in the incidence of the disease.

However, physicians should be given more extensive training in diagnosing and treating infectious syphilis.

Thanks to a teaching grant from the U.S. Public Health Service, a movement was started at the Cornell University Medical School to renew active interest in the disease, which has met with success.

It is recommended that the U.S. Department of Health, Education, and Welfare institute a system of grants in aid for teaching syphilis control throughout American medical schools.

SOMMAIRE

Depuis plusieurs années l'instruction au sujet de la syphilis a été largement négligée dans les programmes des facultés de Médecine aux Etats-Unis. Ceci peut être partiellement attribué à la complaisance occasionnée par la thérapeutique rapide et facile au moyen de la pénicilline, qui a causé une chute rapide dans le taux d'incidence de la maladie.

Néanmoins, les médecins devraient recevoir une formation plus approfondie dans la diagnostique et le traitement de la syphilis infectieuse.

Grâce à une subvention pour l'enseignement accordée par le Service de la santé publique américain, un mouvement fut initié à la Faculté de médecine de l'Université Cornell afin de renouveler un intérêt actif à l'égard de cette maladie, et ce mouvement a obtenu un succès considérable.

Il est recommandé que le Département américain de la santé, de l'éducation, et des oeuvres sociales inaugure un système de subventions destinées à aider l'enseignement des mesures de contrôle de la syphilis dans toutes les facultés de médecine des Etats-Unis.

RESUMEN

Por algunos años se ha descuidado el estudio de la sífilis en los programas de las escuelas de medicinas de los Estados Unidos. En parte esto es el resultado de la complacencia producida por la terapia rápida y sencilla de la penicilina que produjo una diminución rápida en la incidencia de la enfermedad.

Sin embargo los médicos deben recibir una instrucción mas extensiva en la diagnosis y el tratamiento de la sífilis infectivo.

Gracias a una subvención de enseñanza destinada a este fin por el Servicio de Salud Pública de los Estados Unidos, se inició un movimiento en la Escuela Médica de la Universidad de Cornell con el objeto de renovar interés activo en la enfermedad; y este ha tenido buen éxito.

Se recomienda que el Departamiento de Salud, Educación, y Bienestar de los Estados Unidos establezca un sistema de subvención para la enseñanza del control de la sífilis en todas las escuelas médicas de los Estados Unidos.

MANY YEARS AGO, the late Doctor Alan Gregg, in discussing the responsibilities of commercial drug companies in the financing of the training of pharmacologists, told me that you could not raise chickens without a mother hen. This was probably in the pre-incubator days. His inference was that sound pharmacological teaching in medical schools was necessary, if the supply of young pharmacologists, which the drug companies demanded, was to be made available. I have always remembered this analogy, and should like to apply it here in considering the responsibilities of governmental agencies in the teaching of syphilis in medical schools.

The curriculum of teaching in any medical school is an ever changing thing. This is perhaps greatest in the field of infectious diseases. Typhoid fever, which occupied many hours in the average medical student's training, is now rarely mentioned. Other groups of diseases are passed over because they do not seem urgent. I am thinking particularly of the so-called

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tropical diseases such as malaria, amoebiasis and other similar infections. As a result, they are often poorly diagnosed, especially in northern schools.

Decline in Teaching Syphilis

Strange as it may seem, syphilis has fallen into this category. Fifteen years ago, there were in the United States, perhaps 20 strong departments devoted to research, training of physicians and the diagnosis and treatment of patients with syphilis. Large laboratories of experimental syphilis were maintained. Today there are three or four modest departments struggling to survive. If a million dollars were made available tomorrow for syphilis research, only a fraction of it could be spent, due to the lack of trained laboratory workers.

What is the cause of this? To a large extent it was a part of the wave of reassurance which came when penicillin simplified the treatment and the rates fell rapidly. Medical schools, like many other groups, decided that syphilis was not a problem. Federal grants and drug company grants stopped. These factors, combined with the marked decline of infectious cases, brought about a general decrease in interest, particularly in research and teaching.

Almost simultaneously, the treatment of those patients who acquired syphilis passed from the University Hospital Clinic of the Federally supported treatment center, to the practicing physician. The treatment was now simple enough for anyone to administer. The diagnosis could either be made in a state or a city laboratory, or more often, guessed at. In many instances, those physicians who undertook this treatment were grossly unprepared to do so.

I believe that the practicing physician *should* possess the knowledge to enable him to diagnose and treat infectious syphilis. Through thus broadening the base of our workers, we strengthen our attack of the disease. If we are to do this, however, we must maintain a system whereby medical students, interns and residents are made conscious of the problem and taught how to cope with it. Reaching the physician already in practice is still another aspect and needs another approach.

Syphilis Instruction at Cornell

Approximately five years ago, some of us became concerned over the rapid decline of interest in the teaching of syphilis at the medical student level. At Cornell University Medical Center we integrated the syphilis department, which has been a subdepartment of general medicine, into the general medical clinic. Although we possessed several staff members who had had extensive training in syphilis, this was not enough to keep alive the caliber of training which had formerly existed. An appeal to the Venereal Disease Branch of the Communicable Disease Center of the USPHS brought about, as a pilot study, a small teaching grant designed to demonstrate how the teaching of syphilis could be kept alive in medical schools. This grant was used to pay the part-time salary of an Instructor in medicine. This man, with the aid of senior staff members who had an interest in syphilis, succeeded in setting up a system, which we use today, and which, I believe, affords adequate training for our students and residents. Without this individual, whose job it was to work out the details, it would not have been accomplished, since the senior staff had too many other duties. Early in the period, the role of a Nurse, interested in public health administration, became apparent. Much of the success of the scheme is due to the effort and diligence of this individual.

Obtaining Clinical Material

One of the excuses for not teaching syphilis, given by medical schools, is the lack of clinical material. We obtain material in two ways:

1. There is a Medical Board order posted in the admitting office that all patients suspected of having syphilis be sent to the General Medical Clinic. In spite of this, many reach other clinics due to misdiagnosis by the admitting officer. Eventually they are returned, but this causes delay.

2. All patients, prior to admission to outpatient or in-patient service receive a serologic test for syphilis. All positive results are reported to the nurse in charge of the syphilis work. She screens these records and decides, after consultation with the physician, whether or not the patient needs clinical evaluation or treatment.

As a result of these mechanisms, the following material was available during the year July 1, 1961 to June 30, 1962:

Number patients brought under evaluation for syphilis	322
Number disposed of by chart reviews as previously evaluated or adequately treated	105
Number available for clinical evaluation	217

These 217 cases were admitted to the clinic and studied by medical students. Consultation was held with a physician with special training in syphilis. Cases of special interest were seen by the entire clinic group.

Of these 217 cases, 73 were found on further investigation to have had adequate therapy in the past. If they showed clinical evidence, they were kept in followup; otherwise they were probated. One hundred and two cases proved to have previously unrecognized syphilis and were treated. Eleven were considered to be biologic false positives. The remaining cases were made up of yaws, those with terminal disease, or those lost to followup.

Among these 102 cases, there were 24 cases of infectious syphilis and 15 early latent ones. Twenty-six were syphilis in pregnancy.

In keeping with the national trend, only 3 cases of infectious syphilis were seen in the clinic in fiscal 1959, 18 in fiscal 1960, 14 in 1961, and 24 in fiscal 1962.

Under the guidance of the consulting physician and the nurse in charge, medical students do their own contact interviewing and assume responsibility for bringing in these contacts.

In addition to this clinical experience, seminars are held with these studies. Problems concerned in syphilis control are discussed.

In addition to the out-patient work, the physician responsible for the syphilis teaching maintains the in-patient consultation service.

The nurse working in this field maintains liaison with other departments, particularly obstetrics and pediatrics.

Evaluation

What is accomplished by all of this? Evaluation is difficult. The medical students appear to be interested in the subject of syphilis. At seminars the discussions are lively. At least, they are given a working knowledge of the diagnosis and treatment of syphilis. Better still, they are given an awareness that it exists. For what it is worth, on a multiple choice examination, 75% of the senior class selected and answered correctly a question on syphilis.

Need for Grants-in-Aid

Could all this have been done without the financial aid of a teaching grant? I do not believe that it could. Someone, with adequate time, has to have the specific duty of keeping the programme going. These two individuals, the physician and the nurse, were physically located in the clinic, were readily available and felt a responsibility for the success of the programme. All of these factors are essential.

I have attempted to demonstrate that, with the expenditure of relatively small sums of money, an active syphilis teaching programme can be maintained in a University hospital. The material is available if it is sought out. If we are going to accomplish our goal in the control of syphilis, the medical student of today is our hope for tomorrow. We are losing a golden opportunity if we do not make him aware of the problem and teach him how to cope with it.

I would urge most strongly that the Department of Health, Education, and Welfare institute a system of grants-in-aid of teaching syphilis control, similar to those formerly offered by the Department of Defense for the teaching of military medicine. Deans of medical schools and professors of preventive medicine should be made aware of the problem. The ultimate cost is small if one compares it with the cost of maintaining those crippled by neglected syphilis throughout the nation.

Health Department Responsibilities to Practicing Physicians

JOHN W. LENTZ, M.D.

ABSTRACT

There is often an iron curtain between private medical practice and public health medicine, especially where V.D. is concerned. Yet, without participation of private practitioners, health departments will never be able to eradicate syphilis.

The V.D. control program began in Philadelphia in 1941, and cooperation between the health department and private doctors over the past 21 years has been generally good. Nevertheless, the latter were failing to report over 50 percent of their syphilis cases to the local health authorities.

In 1953 the Philadelphia Health Department recommended that all laboratories report all reactive serologies, and in 1958 this became mandatory by law.

Since becoming aware of the aims of the V.D. control program, physicians have for the most part participated well.

The health department is also improving the educational experience of medical students, interns, residents, and practitioners in modern diagnosis and treatment of syphilis and gonorrhea.

Another task of the Philadelphia Health Department has been the introduction of a syphilis casefinding program to the large City Hospital. If feasible, this program will be extended to other large teaching hospitals of the city within a year or so.

SOMMAIRE

Il existe souvent un rideau de fer entre la pratique médicale privée et le service de santé publique, surtout lorsqu'il s'agit des maladies vénériennes. El pourtant, sans la participation des praticiens privés, les services de santé ne parviendront jamais à éliminer la syphilis.

Le programme de contrôle des maladies vénériennes de la ville de Philadelphie débuta en 1941, et la coopération entre le Service de santé et les médecins privés pendant les 21 ans écoulés y a été généralement satisfaisante. Cependant, ces derniers négligeaient de déclarer plus de 50 pourcent de leurs cas syphilitiques aux autorités sanitaires locales.

En 1953 le Service de santé de la ville a recommandé que tous les laboratoires déclarent les résultats sérologiques positifs, et en 1958 une loi rendit ce procédé obligatoire.

Depuis qu'ils ont pris connaissance des buts du programme de contrôle vénérien, les médicins y ont pour la plupart participé activement.

Le Service de santé s'occupe également d'améliorer l'enseignement des étudiants en médecine, des internes, des médecins d'hôpitaux résidents, et des praticiens en matière de diagnostique et de traitement modernes de la syphilis et de la gonorrhée.

Une autre tâche du Service de santé de Philadelphie a été l'introduction d'un programme de dépistage des cas de syphilis dans le grand Hôpital municipal. Si cela est faisable, ce programme sera étendu aux autres grands hôpitaux enseignants de la ville d'ici un an environ.

RESUMEN

Hay a menudo una cortina de hierro entre la práctica privada de la medicina y la medicina de salud pública, especialmente cuando se trata de enfermedades venéreas. Sin embargo, sin la participación de médicos privados, los departamentos de salud no podrán nunca erradicar la sífilis.

El programa de control de la enfermedad venérea empezó en Filadelfia en 1941, y durante los últimos 21 años la cooperación entre el departamento de salud y los médicos privados ha sido generalmente buena. Sin embargo, estos últimos estaban dejando de informar más de 50 por ciento de sus casos de sífilis a las autoridades locales de salud.

En 1953 el Departamento de Salud de Filadelfia recomendó que todos los laboratorios informaran todas las serologías reactivas, y en 1958 esto se hizo obligatorio por ley.

Desde que se han percatado de los propósitos del programa de control de la enfermedad venérea, los médicos han en su mayor parte participado bien.

El departamento de salud está también mejorando la experiencia educacional de estudiantes de medicina, internos, residentes y médicos que ejercen la profesión en el moderno diagnóstico y tratamiento de la sífilis y gonorrea.

Una otra tarea del Departamento de Salud de Filadelfia ha sido la introducción en el hospital más grande de la ciudad de un programa para localizar casos de sífilis. Si es posible, este programa será extendido a otros grandes hospitales de enseñanza de la ciudad dentro de un año más o menos.

THE FOLLOWING presentation is influenced by the experience of the speaker, who for 21 years has been a half-time venereal disease control officer for the fourth largest city in the United States, namely, Philadelphia, and a dermato-syphilologist in private practice. This balance of experience has created an awareness of the responsibilities which a health department should assume toward physicians in private practice, and the obligations which private medicine should feel toward the health department.

Unfortunately all too frequently there is an iron curtain between the private practice of medicine and public health medicine, especially where the clandestine, socially stigmatized venereal diseases are concerned. Where such a situation exists, health department personnel have often failed to present the aims and objectives of the venereal disease control program to private practitioners, whose main responsibility conventionally has been caring for the sick. For the most part, physicians in private practice are not preventive medicine or public health oriented by training and thus cannot be expected to participate automatically in venereal disease control. Without their participation, health departments will never be able to eradicate or even control syphilis. It is impossible to offer a panacean solution for this problem applicable to every rural or urban area. Therefore, subsequent statements are confined to what Philadelphia is doing to remove its iron curtain.

In Philadelphia, the venereal disease control program began in 1941. Professional personnel are all Board certified specialists in dermato-syphilology, gynecology and urology, and are active members of the Philadelphia County Medical Society. Some are members of the Venereal Disease Subcommittee of this organization. Cooperation between these individuals and private practice over the past 21 years has been basically good, with some exceptions.

Despite this congenial relationship, syphilis morbidity reporting by private physicians and private hospitals was sporadic and inaccurate. This situation, unsatisfactory from a morbidity standpoint, existed despite the fact that this urban health department offered private practitioners free drugs and free laboratory service for their medically indigent patients, for whom morbidity reports were received.

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Through questionnaire surveys, data was obtained indicating that some 10 per cent of the 4,800 practicing physicians in this city were diagnosing and treating syphilis. These doctors were failing to report more than 50 per cent of their syphilis cases to the local health department.

During 1953 through 1957, the pale spirochete of syphilis seemed to be stamped out. Personnel of the local venereal disease control program felt an urgent need to find out just how much syphilis was being treated by private physicians. They knew that syphilis morbidity from private practice was woefully inadequate, that the economic status of the citizens had improved and that many were seeking private medical care.

Mandatory Reporting of V.D. Incidence

In 1953, the Philadelphia Health Department advocated that all laboratories, private and public, routinely report all reactive serologies. These were to be identified by the patient's name, address and name of attending physician. In 1958, a law was passed which made such reporting mandatory. This identifying information formed the basis from which venereal disease personnel contacted physicians in private practice. The purpose of this contact was threefold: to ascertain actual syphilis morbidity in private practice, to better define the magnitude of the syphilis problem in this city, and to offer, on a face-to-face basis, a variety of services that many physicians did not know existed up to this time.

Once aware of the aims and objectives of the venereal disease control program, these physicians, with few exceptions, have participated well. They have supplied morbidity reports; and have also permitted health department investigators to interview their infectious syphilis patients in their own office or in an appropriate location.

V.D. Investigators

It should be pointed out that the Disease Control Investigators are a highly select group, imbued with the importance of being tactful and considerate of the physician and the patient. This is important, since in the majority of instances these investigators are the only contact between the health department and private practitioner, with the exception of the Public Health Nurse working in family situations where they come in contact with the family physician.

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Educational Program

Another responsibility which the Philadelphia Health Department has assumed is to improve the educational experiences of medical students, interns, residents and practicing physicians in the modern diagnosis and treatment of syphilis and gonorrhea. This is being accomplished in several ways.

The local health department offers paid summer training courses for medical students in the venereal disease control program. Because of limited space and lack of funds, only three students have attended each summer training course for the past six years.

For the past two years in Philadelphia, the local health department has offered to residents in dermato-syphilology, urology and gynecology, Civil Service exempt positions on a fee per hour basis. Residents are assigned to V.D. clinics to work under the supervision of Board certified specialists. The basic purpose of this program is to increase their syphilis index of suspicion. Three of the five medical schools are participating in this program and rotating their residents through this training experience. All reports have been favorable. It is anticipated that this program will expand in the immediate future.

Hospital Epidemiology Program

Another responsibility assumed by the Philadelphia Department of Health has been the extension of the syphilis casefinding program into the large City hospital which processes yearly approximately 50,000 patients and reports 4,200 reactive serologies to the local health department. Three V.D. people have been assigned to this institution on a full-time basis: an investigator, a public health physician and a clerical assistant. The clerical assistant is located in the hospital Record Room. The others are, in a sense, roving emissaries of the health department throughout the hospital.

Reactive serologies are processed daily, priority being given to high titer test results in individuals under the age of 50 who are either in or outpatients. In this way, the public health physician has an opportunity to teach acme diagnosis and treatment of syphilis to the house staff. Their interest in this program has been heart-warming. The impact of this hospital epidemiology program should be considerable. If practical and feasible, it will be expanded to include other large teaching hospitals within the next year or so.

Medical Education

Although the health department has felt a keen responsibility to stimulate the reinstitution of syphilis teaching courses in medical schools, it has not as yet been possible to make any inroads into the already overcrowded curricula. However, on occasion, venereal disease control specialists have been invited to give lectures, which have been very well received by students and faculty. These lose much of their potential impact by not being a regular part of the teaching schedule. One of the saving factors in this situation, however, is that some of the professional venereal disease control personnel are faculty members of several of the medical schools and do get the opportunity to teach public health methods of venereal disease diagnosis, treatment and control.

Future planning related to increasing health department responsibilities to practicing physicians includes publishing and circularizing a weekly V.D. newsletter to physicians in this urban area; communicating with all graduating medical students to inform them about health department venereal disease program and services available to them; and visiting periodically on an informal basis those physicians who are handling most of the syphilitics in this area.

Securing Cooperation From Physicians

Philosophically speaking, it seems that much of the iron curtain between the private practice of medicine and health department venereal disease control programs can be dissipated. All health departments must actively assume responsibility for dissipating misunderstandings which exist in the minds of private practitioners. Physicians must be convinced health departments do respect the confidential relationship between the physician and his patient. Investigators will not encroach on his valuable time more than is necessary. Investigators will make every effort to return to private practice syphilitics and their contacts who are in need of further diagnosis and/or treatment.

Conceivably there will always be a hard core of physicians who for many diverse reasons will not cooperate with the health department in venereal disease control. However, experience in Philadelphia indicates that the vast majority of physicians do welcome any assistance offered to them.

Here is a formula for fulfilling health department responsibilities to the private physician: Initiative + Legislation + Salesmanship = Participation. Initiative should emanate from

the health department. The impetus must precipitate from the top, permeate the department and penetrate the iron curtain of apathy and apprehension which exists today between health departments and the private practice of medicine.

Legislation must exist so that physicians and laboratories can participate without fear of repercussions and have a common basis for group effort with the health department toward syphilis eradication.

Salesmanship is the implementation of the concept that eradication is possible with physicians and health departments united as a cohesive force. To attain this unity is the prime responsibility of the health department.

Speaking as a private practitioner and as a health officer, I can foresee the eradication of syphilis only through such a united effort.

Health Department Responsibilities to Hospital Staffs

WILLIAM J. DOUGHERTY, M.D.

ABSTRACT

Health Departments have the responsibility toward hospitals to: (a) arouse suspicion of syphitis; (b) provide consultation services; (c) stimulate routine serologic testing for syphilis; (d) provide epidemiotogical services; (e) encourage speciat studies; and (f) proride financial assistanee.

Heatth department officials must have personat contacts with hospital staffs and educate them on questions relating to syphilis.

It is imperative that routine serotogic tests be used as an essentiat element of diagnosis.

Public heatth investigators are trained to interview newly diagnosed cases of syphilis for contacts and suspects, to locate these, and to bring them to medical examination.

Heatth departments have the responsibility to establish and maintain a reporting and referrat system that assures that hospitat patients receive maximum benefits of epidemiotogic investigation and that all efforts be made to break the chain of infection.

Many hospitats may feel complaeent about their diagnosis and therapy of syphitis. The heatth department is to work with them to stimutate setf-evatuation.

Heatth dcpartments are to provide clinic services where no public clinics exist.

If syphitis is to be eradicated, the hospitals must assist; and if they are to assist, they must be working partners of health departments.

SOMMAIRE

Les services de santé out la responsabilité envers les hôpitaux de: (a) stimuler la suspicion de ta syphilis; (b) fournir des services de consultation; (c) encourager les examens sérologiques routiniers pour ta syphilis; (d) pourvoir aux services épidémiologiques; (e) favoriser les études spéciales; et (f) fournir une assistanec financière.

Les fonctionnaires des services de santé doivent entretenir des contacts personnels avec les cadres des hôpitaux afin de tes instruire au sujet de questions afférentes à la syphilis.

Il est indispensable qu'un examen sérotogigue routinier soit effectué en tant qu'élément essentiel du diagnostique.

Les inspecteurs des services de santé sont formés à interroger les syphilitiques récemment diagnostiqués afin de découvrir les contacts et les suspects, mettre ta main dessus, et tes conduire à un examen médical.

Les services de santé ont la responsabitité de rédiyer des rapports et de maintenir un jeu de fiehes afin d'assurer que tes malades des hôpitaux bénéficent au maximum des avantages des rechereches épidémiologiques, et que tous les efforts soient entrepris en vue d'interrompre la chaîne d'infection.

Bon nombre d'hôpitaux sont sans doute complaisants au sujet de leur diagnostique et de leur thérapeutique de ta syphitis. Les services de santé doivent travaitter avec ces hôpitaux dans le but de stimuler chez eux l'autoévaluation.

Les services de santé doivent pourvoir aux services de clinique tà où les etiniques publiques font défaut.

Si on veut éliminer ta syphilis, tes hôpitaux doivent prêter leur coucours; et dans ce cas, its doivent agir de pair avec les services de santé.

RESUMEN

Los departamentos de salud tienen las siguientes responsabilidades en relación a los hospitales: (a) fomentar el recelo hacia ta sifilis; (b) facilitar servicios de consulta; (c) estimular pruebas serológicas rutinarias de sifilis; (d) suministrar servicios epidemiológicos; (e) alentar los estudios especializados; y (f) facilitar asistencia técnica.

Los funcionarios del departamento de salud deben mantener, contactos personales con los empleados del hospital y adiestrarlos en asuntos relativos a la sifilis.

El uso de pruebas serológicas rutinarias de sifilis se debe usar como componente esencial para el diagnóstico.

Los investigadores de salud pública están adiestrados para entrevistar los casos recientes de sifilis con el fin de averiguar quienes son los contactos y los sospechosos, como localizarlos y a la vez proporcionarles examen médico.

Los departamentos de salud están en la obligación de establecer y mantener un sistema de notificación y de referencia que asegure que los pacientes hospitalizados reciben el máximo beneficio de la investigación epidemiológica y que se están haciendo todos los esfuerzos para romper la cadena de transmisión.

Muchos hospitales pueden sentirse engañadamente satisfechos de su sistema de diagnóstico y terapia de la sifilis. El departamento de salud debe trabajar en

cooperación con estos hospitales y estimular en ellos su evaluación interna.

Los departamentos de salud están obligados a proporcionar servicios clínicos en lugares donde no hayan clínicas públicas.

Para conseguir la erradicación de la sífilis es necesario que los hospitales presten su colaboración, y para ello, estas instituciones deben trabajar en estrecha colaboración con los departamentos de salud.

THE COMMUNITY hospital is an important unit of medical service. Many diagnostic and therapeutic skills are concentrated within its walls. If syphilis is to be overcome, these skills are needed as part of the total Public Health Program for diagnosing, treating and reporting syphilis. Health departments, therefore, have responsibilities:

—To arouse the suspicion of syphilis.
—To provide consultation services.
—To stimulate routine serologic testing for syphilis.
—To provide epidemiologic services.
—To encourage special studies.
—To provide financial assistance.

Arouse Suspicion of Syphilis

To arouse the suspicion of syphilis, the health department is obliged to plan and to carry out an educational program which reaches out to the hospital staff. It is not sufficient to use the printed word, to send a letter, special report or a book. It is necessary for the health department physician to meet with the hospital staff. Then he presents information on the diagnosis and epidemiology of syphilis. He describes the current status of syphilis in the community which the hospital serves. He is available to answer questions on the interpretation of serologic tests and general principles of treatment. He may exploit the interest of his audience in the current exploding incidence of infectious syphilis. Frequently it is important to explain how the physician and hospital may report a case of syphilis to the Health Department. A clear presentation of the steps taken in an epidemiologic investigation of syphilis often clarifies the practicing physician's ideas about this activity and wins his confidence in it.

A clear understanding of the current high incidence of syphilis; the important elements of history; physical examination and diagnosis; available serologic tests; recommended guides for therapy; the need for reporting of cases and the character of epidemiologic services, all tend to increase alertness concerning syphilis and increase hospital staff participation in control efforts.

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Provide Consultation Services

The need for consultation services is easily recognized. Much remains to be learned about syphilis. Many phenomena have not been precisely explained. In a complex disease such as syphilis it is inevitable that there will be differences of opinion about difficult diagnoses. To resolve these differences, the Health Department is obliged to make consultation services readily available to hospital staffs. This service should include an evaluation of the history, physical findings, and laboratory evidence collected on patients suspected of syphilis. It has been found necessary to provide darkfield examinations as part of a consultation service. A diagnosis may not always be reached; frequently there is need to observe the patient's disease for a longer period and to obtain additional laboratory evidence.

The provision of treponemal serologic tests, including the Treponema Pallidum Immobilization Test, is essential to the service. Where a diagnosis is reached, treatment may be outlined. Consultation services of this type may be made available on a person to person basis within the hospital. They may be rendered by telephone if an emergency exists or where a long standing rapport has developed. Laboratory services should be rendered directly as required.

Stimulate Routine Serologic Testing for Syphilis

Hospital services are rendered to many millions of in-patients and out-patients each year. These patients of both sexes and all ages come from all strata of society. They present an astounding maze of symptoms and exhibit many varied signs of disease. Syphilis, the great imitator, has little respect for sex, age or social status and has disguised itself under many forms of illness. Today, with the sharp resurgence of infectious syphilis, syphilis is again appearing in hospitals and is not being recognized. It is imperative that the routine serologic test for syphilis be used as an essential element of diagnostic procedure. The Health Department has a responsibility to stimulate the use of this

procedure in all hospitals for all patients. Specifically, routine serologic tests for syphilis should be performed on all new hospital admissions and readmissions who have been tested more than six months before; on all patients with skin disease regardless of the date and result of last serologic test; on all patients with non-syphilitic venereal diseases; and on all new admissions to out-patient clinics and readmissions who have been tested more than six months before.

Provide Epidemiologic Services

The Health Department, receiving a report of syphilis, or a reactive serologic test for syphilis is in an important position to render effective epidemiologic service to a hospital and its staff of physicians. Health Department investigators will find and return to treatment inadequately treated cases. They will locate and bring to examination patients reported with reactive serological tests for syphilis. This is necessary, for frequently a patient may be treated for the cause of his admission and released before his blood test report is considered by the physician.

Investigators are also trained to interview newly diagnosed cases of syphilis for contacts and suspects, to locate these persons and to bring them to medical examination.

The Health Department has the responsibility of establishing and maintaining a reporting and referral system that assures that hospital patients receive the maximum benefits of epidemiologic investigation, and that all efforts be made to break the chain of infection.

Encourage Special Studies

Many hospitals may feel complacent about their management of the diagnosis and therapy of syphilis. It is a responsibility of the Health Department to work with hospitals to stimulate self-evaluation studies. These studies include the clinical evaluation of a series of patients having reactive serologies. Medical staffs have been surprised at the result of such studies. As a result of one such study, a hospital record analyst has reported that a large number of physicians seem to pay little attention to the reactive blood test when it appears on the chart. Some physicians are fearful of labeling the patient as syphilitic. Physicians evade making a diagnosis outside of their specialty. The surgeon feels this diagnosis is the responsibility of the family physician. A hospital record analyst working with the laboratory, the physician staff and the record office can call to attention immediately the presence of a reactive serology and focus diagnosis and therapy where it is needed.

There is need to consider also the thoroughness with which physical examinations are performed. Strict attention to a search for lesions suspected of syphilis is indicated for the skin, oral, genital and anal areas. Too frequently clinics asked to examine contacts for evidence of syphilis overlook the vaginal and cervical examination of female contacts.

Self-evaluation studies of the management of diagnosis and treatment of syphilis by hospital staffs, aided and abetted by the Health Department are widely needed.

Provide Financial Assistance

Within recent years public clinics in many areas have been closed, leaving the burden of treatment to private physicians and hospitals. Many States provide fees to private physicians for treatment of syphilis cases, but only a few hospitals receive fees for treatment. In many hospitals, clinic services could be rendered if facilities and financing were provided.

It is the responsibility of Health Departments to provide clinic services in those areas where no public clinics are available. These clinics may be established in local hospitals through grant-in-aid funds from the Health Department.

Summary

If syphilis is to be eradicated, the hospital must assist. If the hospital is to assist, it must be a working partner with the Health Department. The Health Department must reach out with an educational program to arouse a high index of suspicion for syphilis. It must provide to the hospital consultation and laboratory services for the diagnosis, treatment and management of syphilis. There is urgent need for the resumption of routine serologic testing for syphilis in hospitals and an adequate follow-up of serologic reactors. Here the joint action of Health Department and hospital is imperative. Each hospital should assess its attitudes towards syphilis and its efficiency in diagnosis and management. The Health Department is ready to assist in this evaluation.

By merging their resources the hospital and Health Department can forge a strong chain of action in the program to eradicate syphilis.

Health Department Responsibilities to Schools of Nursing

HILDA A. NIVALA

ABSTRACT

Inasmuch as approximately one half of the total investigations in venereal disease control are completed by public health nurses, it is fitting that the responsibilities of the health department to nursing schools be considered.

About 10% of the total number of professional nurses in the U.S. are employed as public health nurses in health agencies, schools and industry. Since the advent of antibiotics, communicable disease hospitals in large cities and communicable disease wards in hospitals have been closed. Thus the student is not provided with adequate clinical examples in the hospital setting. A health department can provide the clinical cases for teaching purposes. Thus the clinical course of the disease and the relationship of the host, organism and environment can be examined in relation to a particular patient or patients.

Of the employed nurses, 8% are listed as office nurses. It is suggested that invitations to physicians to visit health departments should include the office nurses.

Faculty members can be invited to participate in in-service education courses in V.D. control and on-the-job experiences in health agencies. Also, morbidity data and other teaching aids can be made available to schools of nursing.

Health departments have a responsibility to provide experiences for students in which emphasis is placed on the dignity and worth of man. Venereal disease patients need psychological support to make them feel more secure as persons.

SOMMAIRE

Etant donné qu'à peu près la moitié du total des enquêtes se rapportant à la lutte préventive contre les maladies vénériennes est faite par des infirmières d'hygiène sociale, il convient d'examiner les responsabilités du service de la Santé envers les écoles d'infirmières.

Environ 10% du nombre total des infirmières de profession aux Etats-Unis sont employées comme infirmières d'hygiène publique dans des organismes de la santé, dans des écoles et dans l'industrie. Maintenant qu'on emploie les antibiotiques, on a fermé les hôpitaux des maladies contagieuses dans les grandes villes et les salles réservées aux maladies contagieuses dans les hôpitaux généraux. De sorte que l'élève infirmière n'a plus suffisamment d'exemples cliniques pendant son stage à l'hôpital. Toutefois, les leçons se rapportant aux maladies vénériennes sont incorporées dans plusieurs parties des cours. Un service de la santé peut fournir les cas cliniques pour l'enseignement. De cette façon, le développement clinique de la maladie et les rapports entre l'hôte, l'organisme et le milieu peuvent être examinés en ce qui concerne un malade particulier ou des malades.

On suggère que les invitations faites aux médecins de venir visiter les services de la santé soient également faites aux infirmières de leurs bureaux.

Le personnel enseignant des facultés de médecine peut être invité à assister à des cours "in-service" [—cours à temps partiel que l'on peut suivre à titre de perfectionnement tout en poursuivant son travail habituel] et à venir partager les expériences acquises par les services de la santé au cours de leur travail de tous les jours.

Les services de la santé ont la responsabilité de mettre les étudiants en contact avec des cas où la dignité et la valeur de l'homme sont soulignées.

RESUMEN

Toda vez que enfermeras en salud pública efectúan aproximadamente la mitad de todas las investigaciones en materia de control de las enfermedades venéreas, es lógico considerar la responsabilidad del departamento de salud hacia las escuelas de enfermeras.

Aproximadamente un 10% de todas las enfermeras profesionales de los Estados Unidos trabajan como enfermeras de salud pública en clinicas de salud, en escuelas y en industrias. Desde que se comenzaron a usar los antibióticos, hospitales de enfermedades transmisibles en grandes ciudades y salas de enfermedades transmisibles en hospitales han cerrado sus puertas. Asi que al estudiante no se le brindan ejemplos adecuados en el medio hospitalario. Un departamento de salud puede proporcionar los casos clinicos para fines de enseñanza. De modo que el desarrollo clinico de la enfermedad y las relaciones entre el sujeto, el organismo y el ambiente pueden examinarse en relación al paciente o pacientes.

El 8% de las enfermeras empleadas están clasificadas como enfermeras de oficina. Se sugiere que cuando se extiendan invitaciones a médicos para visitar departamentos de salud, éstas se hagan extensivas a las enfermeras.

Se puede invitar a miembros del claustro de profesores a que participen en cursillos educativos, sobre el control de enfermedades venéreas durante los periodos de servicio y a participar en experiencias en los ser-

vicios sanitarios. Como tambien daros sobre la mortalidad, y otros materiales didácticos pueden ser disponibles a los colegios de enfermeras.

Los departamentos de salud tienen la responsabilidad de brindar a los estudiantes la oportunidad de adquirir experiencia en que se ponga de relieve la dignidad y el valor de la persona humana. Los pacientes de enfermedades venéreas necesitan ayuda psicológica para reasegurarlos como individuos.

THERE ARE 1,561 health units (*1*), serving approximately 95% of the population in the United States. Nine hundred and two or over one-half are single county units; the remaining health units are about equally divided into city health departments of which there are 307 and district health departments which number 352. District health units are made up of adjoining counties or municipalities supervised by one health officer.

In many areas of the country and especially in the single county health units the citizens' understanding of public health is the services of the public health nurse. In this country approximately one-half of all public health funds and positions in public health agencies are devoted to public health nursing (*2*). Also, the Venereal Disease Branch of the Public Health Service has estimated that one-half (*3*) of the total investigations in venereal disease control are completed by public health nurses. It is fitting then, that the responsibilities of the health department to schools preparing nurses for these positions be considered.

Changes in Nursing Education

Nursing education in the United States in the past two decades has undergone many changes. Traditionally, hospitals have provided an apprentice type of experience for students. This preparation does not qualify the nurse for beginning positions in public health agencies; however, many graduates of three-year hospital schools supplement the work of qualified public health personnel in health departments. The preparation of nurses for public health work today seems to be firmly established in four-year basic baccalaureate programs within university settings. There has been a rapid increase in these four-year degree programs which include public health nursing preparation as an essential for accreditation. Five years ago there were 36 (*4*, *5*) programs of this kind. Now there are 113 and the number of schools applying for accreditation is increasing. Approximately 500 (*5*) three-year diploma or hospital schools of nursing are accredited to prepare nurses for bedside care, private duty, office nursing, etc. Further changes in the education of nurses are to be expected; however, education as a by-product of nursing service seems to be relegated to the past.

Of the 500,000 (*6*) or one-half million professional nurses employed in the United States, 50,000 or about 10% are employed in public health agencies, public and parochial schools, and industry. Another 40,000 or 8% of the total are listed as office nurses. Approximately one-fifth of employed nurses are likely to work in settings where patients infected with venereal disease are diagnosed and treated.

Health departments in the United States do not have authority or legal responsibility for the pre-service training of nurses. The direction the educational program takes rests with the school of nursing or university. Our national nursing organization, The National League for Nursing, visits the schools, makes recommendations, reviews applications and accredits the school when standards of the school meet the criteria listed by The National League for Nursing (*7*). Health departments, however, have always responded and taken a very active interest in providing field experience for students of public health. In the area of communicable disease control, service agencies, more than ever before, will have a major contribution in the learning experience of public health workers. Since the advent of antibiotics, communicable disease hospitals in large cities and communicable disease wards in hospitals have been closed. The small number of patients admitted to general hospitals do not provide adequate clinical examples for the student during her basic core of learning experiences. The few patients who have reactive serologies are usually hospitalized for some other condition and the patient's syphilitic status is not of major concern to hospital staff.

With the dearth of clinical cases in the hospital setting and with changes in nursing education, curriculum content in schools of nursing has been revised and venereal disease content is no longer taught as a separate unit of instruction. Teaching in this specialty is incorporated into many units of instruction (*8*). For example, syphilis in pregnancy and congenital syphilis are studied in connection with maternal and child health; the study of heart conditions

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includes cardiovascular syphilis; and another example of teaching venereal disease in other units of instruction is the study of gonorrhea and its complication in gynecology and urology.

In addition to specific content about diseases, the student today is getting a much broader background in the social sciences (*9*, *10*). Courses of study such as psychology, psychiatry and philosophy and the study of normal physical, mental and emotional growth help to give the student a better understanding of the health needs of people. The effect of environment on health is included in courses such as sociology, anthropology, and public health.

It would appear then that the student has an excellent theoretical background for working in venereal disease control programs. Unfortunately, in the hospital setting little opportunity is provided to learn firsthand the particular needs of persons infected with venereal disease. There are some exceptions. The venereal disease control program in Massachusetts is one.

Also, faculty of medical and nursing schools in some of our larger educational institutions have recognized the need to provide experiences for students in a setting which encompasses a philosophy of patient-centered or a comprehensive type of care. For example, at the Cornell Medical Center in New York (*11*) the hospital assumes responsibility for casefinding, treatment, contact interviewing and followup of all patients with reactive serologies admitted to any service in the hospital. In this type of service and teaching program the medical and nursing students are given a view of many of the factors which influence the incidence and control of the disease. The epidemiology of the disease brings the student closer to understanding the broad underlying social problems of the community which affect the extent of the venereal disease problem. Interviewing patients for familial and sex contacts and becoming concerned with patients' other health and welfare needs, the student quickly learns how much the official health department, the private physician, and other community agencies are dependent and inter-related in public health programs. This excellent program of patient care and instruction is not generally available to students graduating from medical and nursing schools today.

In most areas of the country, the student nurse graduates without ever fully recognizing that venereal disease is still a public health problem. Heart patients, cancer patients, patients suffering from tuberculosis are hospitalized and these problems are very real to her while venereal disease often is something she has only read about.

Provide V.D. Clinical Case Teaching Material

The greatest contribution then that a health department has in the education of nurses for venereal disease control work is to provide the clinical cases for teaching purposes while the nurse is on field experience as a student. The fragments of learning she has gleaned from various instructors and from many units in the curriculum now begin to fall into proper perspective. The clinical course of the disease and the relationship of the host, organism and environment can now be examined in relation to a particular patient or patients.

Nurses enrolled in a three-year diploma program will not have field experience in a public health agency. As office nurses for physicians in private practice, many of these nurses for the first time will be seeing patients whose major concern is a venereal infection.

Explain Health Department in V.D. Control

Legally the responsibility for venereal disease control is one which private practice and public health share. A doctor must report to the health department communicable diseases as required by law. One health officer invited each new physician in private practice in his community for a visit to the health department. At this time he reviewed the method of reporting diseases to the health department and also explained the services available to physicians in the community. If this practice could be initiated in more health departments and extended to include an invitation to his office nurse, it can only be speculated how much the communications between the public health agency and private practice would be improved. Another responsibility then to these schools of nursing is a vivid interpretation of the communities' health problems, and the organized efforts of public health and private practice in the control of communicable diseases.

Provide Teaching Materials

Faculty in schools of nursing welcome assistance from health agencies; however, this help should be given in such a manner that the instructor will be able to guide the teaching and practice of students at all times (*12*). Learning experiences in schools of nursing are planned to give students practice beginning with normal uncomplicated nursing procedures to the more complex and complicated type of

care required of her as she matures in her work. For example, care of mothers and newborns precedes experience in caring for patients with tuberculosis or mental illness. Physical care of patients precedes care of persons whose needs are met by health counseling. Without usurping the faculty members' responsibilities for planning the teaching content, public health personnel have many opportunities to enrich the quality of instruction and experience of students in venereal disease control; for instance, much can be done by providing up-to-date information to faculty to keep them abreast of developments in this specialty. In one State, the monthly report of reportable diseases is sent to private physicians and schools and is viewed by many on the mailing list as a personal communication and an effort of the health agency to include them on the community health team. Reports of studies such as Dr. Deschin's study (*13*) of teenage venereal disease provide excellent teaching material to faculty. Teaching materials were displayed at the last meeting of the American Nurses' Association meeting. At the end of the meeting, over 1,200 nurses had requested educational material for teaching purposes. This seems to be an indication of a renewed interest to include up-to-date information regarding the venereal diseases in units of instruction.

In-Service Training

Health agencies have always recognized the need for on-the-job or in-service training programs for regular staff members. All of us are aware of the vast expansion of new discoveries in the medical and allied sciences. New knowledge and discoveries have placed many new demands and responsibilities on the physician and the nurse. There is need for a longer period of learning. Four-year schools of nursing granting degrees in nursing clearly state that these graduates are qualified only for first level positions in hospitals and public health agencies, and the health department must plan for in-service education in every special program including the venereal disease program. Most of the universities now send faculty to the health agency to supervise students on field work. These faculty members are much more likely to keep in touch with health problems which students must learn to cope with in the public health field. Agencies benefit also by the fresh approach of instructors and a re-examination of the agencies' own services. Meetings of this kind serve still another purpose. School faculty and the professional people from the various program specialties such as venereal disease learn to work together to improve health services to people.

The philosophy and values inherent in health department programs often determine whether the agency will draw its future workers from the student group. Does the health agency provide an experience for the student where she feels that people are the agencies' most important product? Does the student leave her field experience with the feeling that here is a service offered in an atmosphere which she would gladly recommend to anyone? At the John F. Mahoney Teaching Center in New York (*14*), a project sponsored jointly by the Venereal Disease Branch of the United States Public Health Service and the New York City Health Department, patients are made to feel that this is a place where one goes for help. A study at this Center has shown the infectious patients have been helped to become willing partners with the health agency, in tracing the source and spread of the disease. Faculty from many areas of the country have attended this two-week course in venereal disease control. The variety of teaching methods used at the Center have been enthusiastically endorsed by these nurse teachers and supervisors. Films, role-playing, practice interviews with patients and an analysis of the interviews have all contributed to the success of this course.

Summary

In summary, health department responsibilities to schools of nursing include assistance directed toward improving services to patients infected with venereal disease:

1. Provision of clinical case material for teaching purposes for students. Teaching is most effective when actual patient care follows classroom study.
2. An interpretation of health department functions in prevention and control of venereal disease.
3. Provision of up-to-date information regarding the venereal diseases and sharing audiovisual and other teaching aids.
4. Provision for the participation of faculty in in-service education courses and on-the-job experiences in health agencies; this experience will keep the school informed of the kind of services required of graduates.
5. Health departments have a responsibility

to provide an experience to students with emphasis on the dignity and worth of man. Venereal disease patients especially have need for individualized attention to help them feel more secure as individuals. This will help to move them a little closer to the World Health Organization's definition of health: "Health is a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity. The enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being."

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Health Department Responsibilities to Private and Hospital Laboratories

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ABSTRACT

The detection, therapy and epidemiologic control of syphilis and other treponematoses involve the utilization of multiple disciplines. The health department laboratory has a broad scope of responsibilities, including the following: establishment of standards of performance for other laboratories, evaluation of procedures and reagents employed, performance of approved complex procedures not routinely available in smaller laboratories, research and methodology studies, dissemination of information regarding new procedures, training of personnel, and reporting to appropriate agencies of all reactive serologic tests.

In the State of Georgia the establishment of standards of performance and evaluation of facilities, procedures, and reagents has been accomplished through an intrastate evaluation program, the basis for approving laboratories for premarital and prenatal blood testing. At present 92 laboratories are approved, including private, hospital, municipal, state and institutional laboratories. Frequency of contact between control and participating laboratories is of paramount importance and inspection and courtesy visits are made by a Health Department representative.

Prompt reporting of evaluation specimens is required and periodic reviews of results are made. During visitation comparative testing is done to correct errors in technique or deficiencies in reagents.

Seminars and workshops on syphilis serology have been conducted.

Confidential reports on reactive specimens tested in private and hospital laboratories are made daily.

SOMMAIRE

Le dépistage, le traitement et le contrôle épidémiologique de la syphilis et autres trèponématoses font entrer en jeu de multiples disciplines. Le département d'hygiène a un large éventail de responsabilités, parmi lesquelles on compte les suivantes: L'établissement de normes de qualité pour les autres laboratoires, l'évaluation des méthodes et des réactifs employés, l'exercice de procédés complexes sanctionnés que ne peuvent employer couramment des laboratoires moins importants, les études de recherches et de méthodologie, la diffusion d'information relative aux méthodes nouvelles, la formation du personnel, et la déclaration aux organismes appropriés de tous les tests sérologiques réactifs.

Dans l'Etat de Géorgie, l'établissement de normes de qualité et l'évaluation de l'équipement, des méthodes et des réactifs ont été effectués dans le cadre d'un programme d'évaluation pour tout l'Etat sur la base duquel les laboratoires sont habilités à procéder à l'examen sanguin prénuptial et prénatal. A l'heure actuelle, 92 laboratoires y sont autorisés, qui comprennent des laboratoires privés, des laboratoires d'hôpitaux, municipaux, d'Etat et d'institutions diverses. Un contact fréquent entre le laboratoire principal et les laboratoires qui participent au programme est indispensable; un représentant du Département d'Hygiène fait des visites d'inspection et de courtoisie.

La déclaration sans délai des spécimens d'évaluation est obligatoire et les résultats font l'objet d'examens réguliers. Durant les visites, on procède à des tests comparés pour corriger les erreurs de technique ou les défauts de réactifs.

On a tenu des colloques et des réunions de travail sur la sérologie de la syphilis.

Il y a chaque jour des rapports confidentiels sur les spécimens réactifs obtenus dans les laboratoires privés et les laboratoires d'hôpitaux.

RESUMEN

En el descubrimiento, terapia y control epidemiológico de sífilis y otros tipos de treponematoses intervienen múltiples disciplinas. La responsabilidad del laboratorio del departamento de salud en este aspecto es de gran alcance, comprendiendo los siguientes puntos: el sentar normas de operación para otros laboratorios, el evaluar los procedimientos y reactivos empleados, el poner en práctica procedimientos complejos aprobados, que por lo general no se pueden aplicar en otros laboratorios más pequeños, el realizar labores de investigación y estudios metodológicos, el divulgar información relativa a nuevos procedimientos, el llevar a cabo programas de capacitación del personal y el informar a los organismos correspondientes respecto a los resultados de todos los análisis serológicos reactivos.

Las normas de operación y los servicios de evaluación, los procedimientos y los reactivos se han llevado a cabo en el Estado de Georgia sobre la base de un programa intraestatal de evaluación, que ha servido de base para la aprobación de laboratorios destinados a realizar análisis de sangre prematrimoniales y prenatales. Hay en la actualidad 92 laboratorios aprobados que comprenden laboratorios privados, de hospitales, municipales e institucionales. Es de suma importancia que exista un contacto frecuente entre los laboratorios de control y los participantes en

los programas y, a tal efecto, un representante del Departamento de Salud gira visitas de inspección y de cortesía a los mismos.

Es menester que se divulgue con rapidez la información relativa a las muestras de evaluación, realizándose periódicamente estudios de los resultados obtenidos. En el curso de esas visitas se realizan análisis comparativos con el fin de corregir errores en la técnica o deficiencias en los reactivos.

Se han llevado a cabo seminarios y grupos prácticos de estudio sobre la serología de la sífilis.

Diariamente se elaboran informes confidenciales sobre muestras reactivas ensayadas en laboratorios privados y de hospitales.

IT IS AXIOMATIC that the detection, therapy and epidemiologic control of syphilis and other treponematoses involve the utilization of multiple disciplines including the clinician, the epidemiologic investigator, and the laboratorian. The health department responsibilities may include consultation with physicians, provision for interview-investigation service, treatment of cases and provision for efficient laboratory testing services. As these responsibilities apply to private and hospital laboratories the health department laboratory is given an increasingly important role. Not infrequently the reactive laboratory result may be the first indication of a treponemal infection. Erroneously, it may also be used as the sole basis for the diagnosis and treatment of the case. Consequently, accuracy in the performance of a standard test is a prime responsibility of every laboratory making tests for syphilis or other treponemal infections.

However, the State health department laboratory has a broader scope of responsibilities. These may properly include the establishment of standards of performance for other laboratories, evaluation of procedures and reagents employed, the performance of approved complex procedures not routinely available in smaller laboratories, research and methodology studies, dissemination of information regarding newly developed laboratory procedures, training of personnel and the prompt, accurate and complete reporting to appropriate agencies of all reactive serologic tests. These are responsibilities the State health department and particularly the State laboratory has in its relationship to those private and hospital laboratories performing tests for the detection of syphilis and other treponemal infections. In order to meet these responsibilities it is highly desirable that a satisfactory working relationship be established, preferably through voluntary cooperation, but when necessary through implementation of existing laws and regulations or the enactment of legislation. The ability to meet these responsibilities will vary according to the size, program content, and administrative qualifications of the health department and the laboratory, as well as to the number of private and hospital laboratories within the State.

Probably few State laboratories in our country can completely meet all of these responsibilities. When indicated, assistance may be obtained from other laboratories such as the Venereal Disease Research Laboratory of the Public Health Service. Likewise, the State laboratory must and does share some of these responsibilities with other agencies within its own organization such as the Venereal Disease Control Service. This is especially true in the efforts made to obtain for interview-investigation purposes a high rate of reporting of reactive serologic tests. Perhaps the effort of a health department to meet its responsibilities to private and hospital laboratories can be exemplified by a review of the program in our own State of Georgia. While not perfect, this program has achieved recognition for outstanding performance and achievement, especially in the voluntary cooperation secured from the private and hospital laboratories and the physicians.

Testing Standards

The establishment of standards of performance and evaluation of facilities, procedures and reagents have been accomplished through an intrastate evaluation program which is the basis for approving laboratories for premarital and prenatal blood testing for evidence of syphilis. Prior to 1949 when the present premarital blood test law became effective, our laboratory was operating an effective evaluation program on a voluntary basis with some 50 private and hospital laboratories, as well as other public health laboratories within the State participating. Participation in this program under the State premarital and prenatal laws is also voluntary. At the present time, 92 laboratories are approved. Included are 51 hospital laboratories, 30 private laboratories and 11 municipal, State and institutional laboratories. In our opinion frequency of contact between the control laboratory and participating laboratories is of paramount importance in the conduct of a successful evaluation program. This we

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obtain through frequent submission and examination of prepared specimens, and consultations when indicated. Our program necessitates satisfactory examination by participating laboratories of 10 monthly shipments of 20 graded reactive or nonreactive specimens each. The graded reactivity specimens are made by diluting reactive serum with varying amounts of nonreactive serum.

Prior to the initial approval of a laboratory, a visit is made by a representative from our staff who inspects the physical facilities and equipment, and observes the examination by the technician of a set of evaluation specimens. Thereafter, courtesy visits to participating laboratories are made by our representatives, whenever possible.

Prompt reporting of each consignment of evaluation specimens is required and periodic reviews of results are made as the study progresses. Indications of deterioration in the performance of the serologic testing as evidenced by the participant's reports can result in correspondence, a visit to the laboratory by our representative, or a request for the technician to come to our laboratory. During the visitation, comparative testing is done in order to detect and correct any errors in technique or deficiencies in reagents. Failure to fully cooperate in testing, reporting, and meeting prestated proficiency requirements can result in the withdrawal of the laboratory's approval. Letters of approval are sent to those participating laboratories successfully completing the study. Approval is in effect for the succeeding year contingent upon the continued satisfactory participation of the laboratory in our study. Twice yearly a list of approved laboratories is sent to the governmental agency in each county responsible for the issuance of marriage licenses. Interim revisions in the list are sent as they occur. These lists are also sent annually to all state laboratories and other interested agencies. Participants in our evaluation program are provided gratis with the current edition of the Public Health Service publication *Serology of Syphilis* and with copies of any additions to or revisions of this publication as they become available.

Training Personnel

Seminars and workshops on syphilis serology have been conducted by our laboratory with authors of standard tests and representatives from the Venereal Disease Research Laboratory appearing as guest speakers. Through these seminars and the visitations by our personnel, technicians in the participating laboratories are acquainted with newer developments in the field of syphilis serology and are advised of the aids and assistance offered as part of the State laboratory program.

Testing and Consultation Services

For problem cases arising in connection with routine testing, a special testing service consisting of the performance of a battery of standard serologic tests for syphilis is available from our laboratory. This is offered in conjunction with the consultative services of our Venereal Disease Control Service and provides a basis for the referral of specimens to the Venereal Disease Research Laboratory for TPI testing.

In addition to the training given in conjunction with our Evaluation Program, and the routine training of our personnel, staff members give lectures and demonstrations to qualified groups as the need and opportunity arise.

Reactive Serologic Test Reports

A recent Task Force Report on Syphilis Control in the United States made to the Surgeon General, Public Health Service, points out that "a large proportion of laboratories, particularly private, do not report reactive serologic tests for syphilis to the health departments." Figures compiled by our State laboratories and the Venereal Disease Control Service indicate that 801,000 blood tests for syphilis were performed in Georgia during 1961. Sixty-three percent of these tests were performed in public health laboratories; 37% in private and hospital laboratories. A high degree of efficiency in obtaining reports of reactive serologic tests not only from the public health laboratories but also from private and hospital laboratories has been attained in our State. The serologic test reports in each of the public health laboratories are available to our Venereal Disease Control Service investigators who daily catalogue the reactive reports and institute an epidemiologic follow up.

Confidential reports on reactive serologic or darkfield specimens tested in private and hospital laboratories are made daily on forms provided by our Venereal Disease Control Service. Only essential information is requested and a self-addressed stamped envelope is provided for mailing the reports. Prior to

establishment of this reporting program, personal visits were made by representatives from our Health Department to each of the private and hospital laboratories. At this time the representative stressed the great importance of a speedy follow-up of all reactive reports, the confidential nature of our reporting system, the department policy of handling each case only through the patient's physician, and the department's awareness of and appreciation for the valuable services rendered by the private and hospital laboratory in the department's venereal disease control program. It is believed that the excellent cooperation given to the program by the private and hospital laboratories is due to the good relations established through these and subsequent visitations by representatives from our Venereal Disease Control Service and our laboratory.

Summary

In summary, the Health Department has the responsibility for establishment of a program that will assist laboratories within the state, including private and hospital laboratories, in the development and maintenance of an approved routine testing service for treponemal infections and for the prompt, accurate and complete reporting of reactive serologic results to the Health Department for epidemiologic follow-up. It should also provide these laboratories with access to special testing services for problem cases, consultation services, and assist in training programs for their personnel.

Responsibility of a Physician in a Program for Syphilis Eradication

RUDOLPH H. KAMPMEIER, M.D.

ABSTRACT

There has been a reiteration of the consensus that any program of syphilis control or eradication must be pivoted, at least in the U.S., upon the doctor in private practice.

The application of the methods of case finding developed and proven in the public clinics must now be oriented to the private physician. The inherent difficulties posed and the methods used to overcome these have been considered and expanded.

The need for adequate post-treatment follow-up has been re-emphasized, again appreciative of the inherent difficulties which hedge its implementation in private practice. Suggestions have been made to assist the private practitioner in this difficult responsibility to his patient.

Finally, proper attitudes and cooperation between health officials and doctors in practice can only be built upon a firm foundation of knowledge. Current deficiencies in undergraduate and graduate education with regard to syphilis must be corrected and, again, suggestions have been made of using the means at hand in this effort. The immediate problem of continuing and of postgraduate education of the physician in practice must be assumed by Departments of Public Health, the Associations sponsoring this Forum, and medical associations and societies.

By an understanding consideration of the above facts and the implementation of the proposals and suggestions made, one may hope that the "responsibility of the physician in a program of syphilis eradication" will be recognized and accepted by the doctors of our country.

SOMMAIRE

Il a été répété à l'unanimité que tout programme portant sur le contrôle ou l'extirpation des racines de la syphilis doit avoir pour pivot, du moins aux Etats-Unis, le médecin entouré de sa clientèle privée.

L'application des méthodes de dépistage développées et éprouvées dans la clientèle des hôpitaux doit maintenant s'orienter vers le médecin privé. Les difficultés inhérentes que cela pose, ainsi que les méthodes utilisées pour les vaincre ont été examinées et répandues.

La nécessité de suivre de près un traitement postérieur adéquat a été de nouveau soulignée, encore que reconnaissant les difficultés inhérentes qui dressent des barrières à l'implantation de ce traitement dans la clientèle privée. Des suggestions ont été faites pour assister les praticiens privés dans cette difficile responsabilité qu'ils ont vis-à-vis de leurs malades.

En définitive, des dispositions et une coopération convenables entre les fonctionnaires de la Santé et les médecins-praticiens peuvent seulement être bâties sur des bases solides de connaissances. Des déficiences courantes dans l'éducation des diplômés et des non-diplômés ayant trait à la syphilis doivent être corrigées et, une fois de plus, des suggestions ont été faites en vue de l'utilisation des moyens disponibles dans cet effort. Le problème immédiat de la poursuite des études par le médecin-praticien au-delà de l'obtention de son diplôme, incombe aux Services de la Santé Publique, aux Associations patronnant ce Forum, et aux Associations et organismes médicaux.

Par une considération compréhensive des faits ci-dessus et par la mise en oeuvre des projets et suggestions qui y sont faits, on peut espérer que "la responsabilité du médecin dans un programme en vue d'extirper les racines de la syphilis" sera reconnue et acceptée par les médecins de notre pays.

RESUMEN

Ha habido reiteradamente el consensus que cualquier programa del control ó erradicación de la sífilis debe ser dirigido, por lo menos en los E.U., por un médico privado.

La aplicación de los métodos para descubrir el caso, desarrollado y probado en las clínicas públicas debe ser ahora orientado hacia el médico privado. Las dificultades inherentes presentadas y los métodos usados para superar estas han sido considerados y ampliados.

La necesidad para un post-tratamiento continuo adecuado se le ha vuelto a dar énfasis, apreciando de nuevo las dificultades inherentes que impide el establecimiento en la práctica privada se han hecho sugerencias para ayudar al médico privado en esta difícil responsabilidad hacia su paciente.

Finalmente, actitudes apropiadas y cooperación entre los funcionarios de salud pública y los médicos pueden ser solamente establecidos en una base solida de conocimientos. Las deficiencias actuales en la educación de alumnos universitarios estudiantes y graduados, con relación á la sífilis deben ser corregidas y de nuevo se han hecho sugerencias para hacer uso de la forma más efectiva en este esfuerzo. El problema inmediato para continuar y de le educación de los alumnos universitarios no graduados, del médico, debe ser asumido por el Ministerio de Salud Pública, las asociaciones que patrocinan este foro y las asociaciones y sociedades médicas.

Con una reflexión comprensiva de los hechos expuestos y la implantación de estas proposiciones y

sugereneias heehas, uno puede esperar que la responsabilidad del médico en un programa para la erradieación de la sífilis será reeonoeida y aeeptada por los médicos de nuestro país.

GENITOINFECTIOUS DISEASE will cease to present medical and social problems only when the human being loses one of his strongest primordial biologic urges. Since this is unanticipated, control of these diseases can be attained only at the price of eternal vigilance in terms of case-finding followed by treatment.

The rising incidence of syphilis over the past several years, which has prompted this Forum, was anticipated, feared, and warned against by some of us who played a role during the "golden decade of syphilis control" beginning in 1936 (*1*, *2*). I shall take a moment to illustrate our experiences with acute syphilis to serve as a background for my discussion as set forth in the title. Though my illustration was duplicated in many communities, its repetition will serve to emphasize facts and experiences which will be expressed, I am sure, over and over again at this Forum.

As the result of a happy and effective collaborative effort between the Syphilis Clinic of Vanderbilt University Hospital and the clinics of the Davidson County Health Department and the then Nashville City Health Department, in terms of free interchange of patients, the judicious use of police powers and excellent intercommunication regarding patients, contacts and recently treated instances of infectious syphilis, the incidence of syphilis in the community continued a downward trend as shown in Figure 1. The preliminary rise was an expression of the case-finding which began in 1937. It should be recognized that the lessened incidence from 1942–45 coincided with an exodus of many young men of the community into the Armed Forces and by the enforced hospitalization of prostitutes for treatment by the "rapid" method or concentrated use of arsenoxide. Note what occurred when the veterans of the War returned to the community and the well controlled treatment of prostitutes ceased. The incidence of syphilis rose quite markedly to level off at an incidence which however, was lower than previously. Penicillin, having become available, permitted adequate short-term and completed therapy; the attendant lessened incidence of infectious relapse reduced the major reservoir for syphilitic

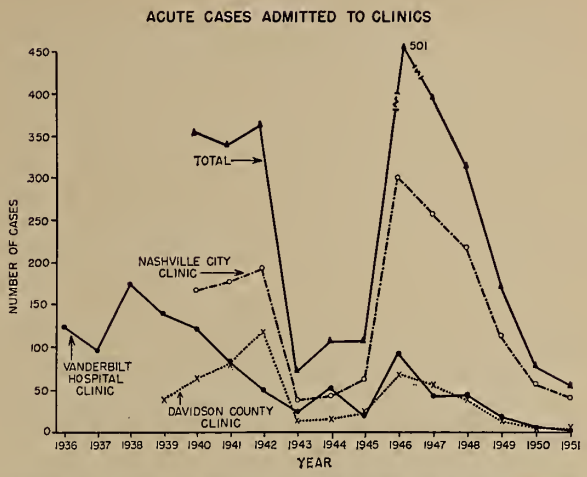

Figure 1. Cases of primary and secondary syphilis admitted by the year to clinics in Davidson County, Tennessee. Contact investigation and case finding began in the Vanderbilt University Hospital Clinic in 1936. Similar activities began in the Davidson County and Nashville City Clinics in 1939 and 1940 respectively. (The Nashville City figures include cases at Hubbard Hospital, Meharry Medical College, after 1946.) The increase in cases in 1946 is probably related, at least in part, to a return of men discharged from the armed services and a spread of syphilis among the population (1). (Source: South. Med. J., 46: 226, 1953)

infection which had resulted in large part from uncompleted therapy in the days of arsenotherapy. Though penicillin thus contributed to a lessened danger of infection, this fact in itself was accompanied by a certain hazard, namely an increasing disregard for adequate post-treatment follow-up in cases of infectious and early latent syphilis and search for infectious and serologic relapse. Though the outlook seemed rosy, some of us viewed with alarm the reduction in funds for Venereal Disease Control which occurred after 1950, recognizing that when contact investigation and proper post-treatment follow-up ceased, infectious syphilis would perforce need to increase in incidence.

With these facts and certain other determining factors in mind, an increased incidence in syphilis seemed probable at a later date. These other factors were the following:

1. Although, because of effective instruction in prophylaxis against venereal disease in the Armed Forces, and with aging and marriage, it was obvious that former veterans would contribute fewer and fewer cases of syphilis, it was equally obvious that a younger generation would acquire syphilis after the usual pat-

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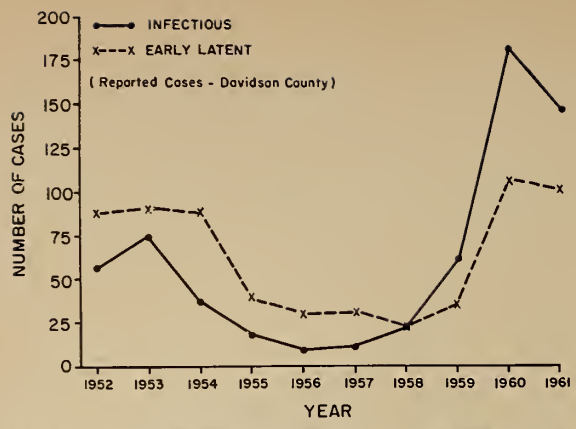

Figure 2. This represents a continuation of Figure 1. The Nashville City Health Department was absorbed by the Davidson County Health Department in 1952. In the same year cases of syphilis found in the Vanderbilt University Hospital and Clinics, as well as those from Hubbard Hospital (Meharry Medical College), began to be reported to the Davidson County Health Department. Thus, the total of cases of acute or infectious syphilis from the several clinics are contained in the heavy unbroken line, which represents a continuation of the line indicated as "total" in Figure 1. Early latent cases are recorded by the broken line. Accurate figures for early latent syphilis would be unavailable in retrospect from certain of the clinics for the period included in Figure 1.

tern if infectious cases were permitted in the community, a fact which the statistics of recent years have borne out. Figure 2 merely provides continuity to Figure 1 and shows that our community shares in the universal increasing incidence of syphilis and bears out the predictions.[1]

2. Within a few years after the War it became clear that more and more syphilis was being treated in the doctor's office.

3. Finally, ignorance and unawareness of the clinical manifestations of acute syphilis on the part of our physicians, and especially of the natural history of the disease—essentially as related to infectious relapse—would lead to misdiagnosis, inadequate follow-up of the treated patient, and lack of essential epidemiologic investigation. This ignorance on the part of the doctor would be compounded by his irresponsibility with respect to case finding and the reporting of syphilitic diagnoses. In fact, I have often thought that some of the decreasing incidence of syphilis in the decade after World War II was more apparent than real, as unreported cases became "lost" in the doctors' practices.

In the era of arsenotherapy, the majority of patients were treated in public clinics for two reasons. First, metal therapy was associated with inconveniences for both doctor and patient, in addition to untoward reactions. Secondly, the long course of treatment was so burdensome for the patient financially that he frequently failed to complete treatment. Therefore the private physician referred most of his patients to public or university hospital clinics. With the advent of penicillin and its ease of administration, and because of the relatively low cost of treatment and a generally better economy, an inestimable amount of antisyphilitic treatment has continued to be given in the office of the private practitioner.

It is this change in the place of treatment and the responsibility for the management of syphilis as of today, at least in our country, that explains my place on this program and the discussion of the "Responsibility of a Physician in a Program for Syphilis Eradication." If the pattern of management of the great majority of patients with early syphilis were unchanged, we could take up where we left off a decade ago, and with increased funds expand the needed personnel in the public clinics to the point of again bringing early syphilis under control by therapeutic and epidemiologic methods demonstrated to be effective in the past.[2] But the answer is not that simple. The immediate problem now is *not* the mere application of time-tried methods, but rather their implementation with a different focus.

There is much evidence to support the assumption that, except in the very large cities, more patients are treated by physicians in their offices than in public clinics. If this be true, the eradication of syphilis must have as its pivot the doctor in private practice. This immediately points up the handicaps to adequate epidemiologic and case finding moves, as well as

[1] Statistical data for Figure 2 was provided by Dr. John J. Lentz, Director of Department of Health, Davidson County, Nashville, Tennessee.

[2] In the Joint Statement by the Association of State and Territorial Health Officers, The American Venereal Disease Association, and The American Social Hygiene Association in *Today's VD Control Problem*, February 1957, appeared the following rueful retrospective statement: "Before an integrated system of information, case finding, referral and rapid treatment, the venereal diseases were melting away. The resulting optimism proved disastrous. . . . Forgotten even by some health officials, was the carefully perfected epidemiological apparatus that brought the patient and the penicillin together. . . . Anybody could get and take penicillin! The intervening years and the painful review of some carefully documented hindsight have established the fact that drugs alone do not stop venereal disease. It is now clear that the ground lost while this expensive lesson was being learned can best be regained by reestablishing in full force and with expanded resources the effective partnership of Federal and State governments which existed prior to 1952."

to post-treatment follow-up for the recognition of relapse phenomena. In other words, as never before control or eradication of syphilis will depend mainly upon the cooperation of the private practitioner with health authorities and their representatives.

Therefore, I will need to discuss case finding methods and post-treatment follow-up as related to the doctor in private practice and the difficulties, both fancied and real, to be overcome. This will naturally lead to a consideration of giving the doctor the proper assistance he needs in his attempts to cooperate in the control of syphilis. And, finally, I must give some consideration to the education of the doctor, for without adequate background he can not use his talents to their greatest potential in dealing with people and the public in the area of syphilis.

The Private Physician and Contact Investigation

We tend to emphasize overt infectious syphilis—the primary and secondary manifestations, including infectious relapse. This prompts some brief comments about the doctor's responsibility in using an intelligent approach to the evaluation of positive serodiagnostic tests found incidental to an examination, whether in the office, or for employment or insurance, or upon admission to a hospital or clinic for unrelated reasons. (This is not the place to discuss the diagnosis of falsely positive tests.)

The positive blood test is the major tool in case finding, and our interest here is in the doctor's evaluation of the patient's problem if he concludes a positive test is indicative of syphilis. Will he proceed immediately to "treat a positive blood test," or will he, by a meticulous history of past illnesses, antisyphilitic treatment, and previous or intervening blood tests, or by physical and spinal fluid examinations, decide that the patient has late or late latent syphilis? Or, by contrast, will he by these same means decide that the patient has syphilis, treated or untreated, of only several years' duration? If his diagnosis is *early latency*, will he recognize his responsibilities with regard to contact investigation in the knowledge that some 25% of patients with untreated syphilis have clinical secondary relapse within the first five years (*3*), and that similar dangers exist even in those treated for acute syphilis, though admittedly less frequently.

If his diagnosis is *early latency*, it is obvious that the marital or other sexual partner, or other intimate has been exposed to the potential hazard of syphilitic infection at some moment.

Having established that the finding of a positive serologic test may demand epidemiologic study under certain circumstances, I can now consider the further responsibility of the practitioner in contact investigation when faced with a patient having acute or infectious syphilis.

I can best pay tribute to the man who was mainly responsible for the successful attack upon syphilis in this country, by quoting from one of his early and significant statements. In 1932, Thomas Parran (*4*) said, "Syphilis can never be controlled while more than one-half of the cases are not recognized for more than one year after onset." Shortly thereafter he (*5*) amplified this thought by stating that, "The epidemiological method of locating infectious sources is an unused weapon, but potentially as valuable as the arsphenamines and serodiagnosis."

The epidemiologic studies of Munson (*6*) in New York, and of Smith and Brumfield (*7*) in Virginia, current at that time, offered confirmation to these early statements. Within the next few years, Clark and his associates (*8*, *9*, *10*, *11*) and Anne Sweeney (*12*) in our own Syphilis Clinic at Vanderbilt University Hospital demonstrated the potency of the epidemiologic method as a major weapon in the control of syphilis. The efficacy of their case finding in our clinic in those early years was demonstrated by the examination of 89% of designated sexual contacts of patients having primary or secondary syphilis, with an incidence of syphilis in 75% of those examined. Of patients with early latent syphilis 91% of the designated contacts were examined, of whom 65% were found to have syphilis, 15% being in an infectious stage. All of the marital sexual contacts of patients with infectious syphilis and 97% of the marital sexual contacts of patients with early latent syphilis were examined, with an incidence of syphilis of 77% and 70% respectively. The effectiveness of epidemiologic methods in the examination of a high percentage of named sexual contacts and the demonstration that acute syphilis occurs in local epidemics was thus firmly established long ago. Such findings, repeatedly verified in subsequent years, have come in the main from the public and university hospital clinics.

Today, as has been indicated, the focus for using such an effective tool must involve the private physician. Yet before this can be done, in all realism, one must face the fact that it is highly probable that only a minority of physicians conscientiously report their cases of early syphilis to the public health departments.

Clark (*13*) indicates that by acceptable statistical estimates it is probable that the annual incidence of acute syphilis is about 60,000 cases. Yet over a five-year period the average annual number of reported cases was 6,500, indicating that 53,500 probable cases of infectious syphilis were missed or not reported each year. This delinquency of doctors in private practice has been documented further by studies of the U.S. Public Health Service in recent years (*14*, *15*).

If private practitioners have not accepted the responsibility of reporting their cases of early syphilis, a responsibility which goes hand in hand with the treatment of the syphilitic patient, what can one hope for in the area of contact investigation? His patients have been lost to case finding by interested persons in the public clinics. However, when practitioners are approached in the hope of getting cooperation in reporting and in applying epidemiologic methods to their private patients, one may be faced with a number of alleged reasons why this is impracticable.

First, is the ever-present excuse of the physician who lacks motivation in whatever the duty or responsibility, "no time—too busy!" In second place stands the plea of privilege to matters private between doctor and patient. Thirdly, if the patient is married, it may be argued that the family must be kept intact and not jeopardized by contact investigation at whatever cost. These are all but excuses. If interest is there, syphilis will be reported and inquiry about contacts of whatever nature will be found to be time well spent. Relative to the second objection to reporting and case finding, one can only comment that any doctor so inadequate that he, first, will not report syphilis and, second, can not convince the infectious patient of his responsibilities to intimate associates, family and community, and is unable to gain his acquiescence and help in contact investigation, does not deserve recognition as a doctor. The third excuse is often a sincere rationalization by the physician who finds acute syphilis in a family, and is thrown into a panic by the knowledge of what he should do and the realization that he does not know how to do it. Upon occasion this has been the frankly stated object of my invitation to act as a consultant, and to proceed with explanations and discussions of the situation with the family.[3]

[3] Human relationships remain quite unchanged and anyone with interest in contact investigation would profit by looking back to Anne Sweeney's (*12*) description of methods in contact investigation and, in the present context, of her amazing success in dealing with married persons.

In general terms, my observations over the years lead me to explain the private physician's lack of a sense of responsibility in contact investigation and resort to subterfuge as follows. First, he is ignorant of, or has given no thought to the epidemiology of syphilis either through inadequate undergraduate instruction or mental laziness. Secondly, there is a surprising hesitancy and embarrassment in discussing sexual matters with patients, and older physicians not uncommonly have admitted this, especially as it applies to their female patients. History taking relative to homosexual and so-called "unnatural" sexual practices I have found is practically nonexistent, though so essential especially in the current increasing incidence of syphilis and the alleged frequency of these practices among teenagers (*16*). Some doctors find themselves speechless when faced with the need of exploring a person's sex life. (The younger generation of physicians is much less inhibited in discussions with patients of sexual matters as biologic facts of life, thanks, I believe to their introduction to psychiatry.) Lastly, the significance of contact investigation in early syphilis is completely lost to the doctor with poor motivation toward the proper practice of medicine and interest in the good of his patients and of mankind.

In spite of these impediments, the fact remains that private physicians hold the key to the eradication of syphilis in our country, because they probably treat more patients with early syphilis in the office than are treated in public clinics. Yet treatment, in terms of overall control, is to some degree of secondary importance, when compared to the little that private practitioners have contributed to case finding and contact investigation. An analysis by Brown, Sellers, and Thomas (*14*) is exceedingly startling and deserves attention. In a five-year period (1954–58), of 19,251 patients with infectious syphilis reported from clinics and hospitals, 86% (16,845) were interviewed relative to contacts. During that same period, of 14,428 such cases reported by private doctors, only 17% (2,400 patients) were interviewed by a trained interviewer for contacts. By application of national indices of case findings, *it is estimated that the 12,028 patients with infectious syphilis reported by private physicians but not interviewed would, if they had been interviewed, have yielded 40,173 contacts among whom would have been found 2,868 cases of infectious syphilis, 1,606 cases of early latent syphilis and 594 cases of other syphilis.*

It will be noted that a "trained interviewer" of private patients has been brought into the discussion. It would be unrealistic to expect the practitioner to do field work in contact investigation, even if he had had training in its techniques. Therefore he must be provided with aid on this score. There has been an all too slow development of assistance to the practicing doctor in contact investigation, though the current rising incidence in syphilis is forcing an acceleration of such an activity. In 1932, Nelson (*17*) showed, with a handful of cooperating private practitioners in Massachusetts, that one of his case-workers could be of help in contact investigation. The feasibility of this approach has been demonstrated sporadically in subsequent years. An extension of such services to the private physician, and the concurrent education to his responsibilities of reporting syphilis and preparing his patient for the meeting with an interviewer, are the only answers to the current impasse in the eradication of syphilis.

The most recent demonstration of success with this method has been reported by Brown and associates (*13*). In Georgia, using 1953–55 as a baseline, a new case reporting program was instituted in 1956, and at the same time doctors were urged to introduce trained interviewers to their patients having infectious syphilis. The next three years, 1956–58, were years of amazing success. More than 10 times more syphilis was reported than over the preceding three years. Furthermore, even though in the earlier three years certain doctors had had 83% of their patients with early syphilis seen by trained interviewers, the number of patients interviewed in the second three years had increased to 97%. A recent letter indicates that for the years 1959–62, over 99% of all patients reported as having infectious syphilis were interviewed by health department investigators. Thirty per cent of these cases were reported by doctors in private practice. The pattern for other health departments has thus been set, granted with variations to meet the needs of a given community.[4]

Case finding, beginning with the private patient who has early syphilis, will need to be initiated by the doctor by introducing the trained interviewer to his patient. It is assumed that "trained" means experience in epidemiologic methods, though other more intangible attributes are probably more essential to success. The patient holds the key to success in contact investigation—he will divulge as much or as little as he pleases. Thus, the interviewer will need to be sensitive to all that is implied in "doctor-patient" relationships, which includes all manner of confidences which must be protected by the interviewer at all costs. After a quarter of a century of familiarity with contact investigation in a university hospital clinic, I would have reservations as to the place of an introduction of the patient to an interviewer. For the patient in the lower socioeconomic strata, not unused to visiting the public health clinics for well baby clinic, immunizations and the like, no objection would be anticipated from meeting the interviewer there. Likewise the anonymity of the large city would permit this same place of meeting. But in all realism and for success in the small city, I would not expect the banker's son to drive to the public health clinic in his sports car, nor one of the town's married merchants to report there. I would suggest instead a rendezvous of patient and interviewer in the doctor's office.

Post-Treatment Follow-up

Though penicillin early was shown to be no more effective than arsenotherapy in acute syphilis, it did, through effective short-term therapy, permit completion of treatment in most patients. Thereby a major segment of infectious syphilis (infectious relapse) which contributed to the community's pool of active disease was practically eliminated. In spite of the guarantee against relapse in most patients treated *adequately*, there has remained the more or less irreducible relapse-rate, variously reported as from 3 to 5%, in patients who have had well established systemic syphilis (secondary syphilis) and have completed adequate treatment by commonly accepted standards. (Is all treatment in the doctor's office adequate —if not what may the relapse rate be?) Therefore the follow-up observation of the patient treated for early syphilis, infectious or early latent, demands careful attention for a five-year period. Meticulous examination for manifestations of infectious relapse in the first two or three years, and titered serologic testing are mandatory. Serorelapse or an established rising titer emphasizes the importance of examination of the patient, evaluation of the spinal fluid for evidence of neurorelapse, and the examination of sexual contacts previously uninfected or treated. (It is well known, for example, that transmission of syphilis in the married

[4] After completion of this paper a report of the successful enlistment of private practitioners in the control program in Norfolk, Va., arrived in the mail (*19*).

not uncommonly is by infectious relapse in a spouse treated before marriage.)

As Federal support for the public clinics was curtailed after 1950 there was increasing evidence of inadequate post-treatment follow-up. Though our Syphilis Clinic had been closed, I continued to see, by request for consultation, most of the patients in our outpatient clinics who had positive blood tests for syphilis. I was alarmed by the unanticipated number of patients who had been treated for acute syphilis and had had little or no subsequent follow-up observation. This was particularly true in the smaller public clinics or for the part-time health officer who had lost personnel through lack of funds. Admittedly, I have never been surprised by the lack of post-treatment follow-up in patients treated by the physician in private practice, for even though he may have advised follow-up visits, the majority of patients fail to do so accusing the doctor of being "money-mad" in urging repeated visits by a "well" person. Many telephoned or written requests by private physicians for return visits are rejected in the same cavalier manner.

This problem of the needed post-treatment follow-up observation by the private practitioner must be met in some way to detect infectious relapse and thereby control the spread of syphilis through this source. Furthermore, the patient's future health, especially as related to the cardiovascular and nervous systems, must be insured by the finding and proper interpretation of serorelapse and/or high titers in the serologic reaction. Several approaches to this problem should be explored.

1. If the doctor is given an adequate knowledge of the biologic features of syphilis in his undergraduate education, he will be in a position the better to advise and to communicate with his patient. He then should hope for success equal to that of a five-year follow-up program for his patient who has completed chemotherapy for active tuberculosis, though he must take into account the ever-present additional hurdle of the patient's desire to erase syphilis and its treatment from his conscious mind, especially if he has married in the interim.

2. Recognizing that so many patients having syphilis are now treated by the doctor in his office, public health officials and their personnel, as well as medical societies, should use every means to educate the public to respect the advice of their doctor for follow-up, and to stress the need for periodic examinations. This offers the additional dividend of putting pressure through the patient upon the irresponsible practitioner who prefers "to wash his hands" of the case after treatment has been completed and the bill paid.

3. Public health officials should collaborate with those in practice to develop some means of implementing the follow-up in instances in which the patient is recalcitrant or uncooperative in post-treatment observation.

The trained interviewer who has already met both patient and doctor could assist in getting this patient back to his doctor for post-treatment examination. If the interviewer returns the patient to the doctor rather than to the public health clinic, and if he reaches the patient by means and routes which are not embarrassing, avoiding his place of employment or his home, especially if he married after treatment, confidence will have been established in the minds of both the doctor and the patient. (If the diagnosis of syphilis is a part of the patient's health record in an industrial plant, the health nurse or plant doctor offer the interviewer the most convenient line of communication.) However, all who need to deal with the treated patient must recognize his usual and overwhelming desire to bury deeply, knowledge of his antisyphilitic treatment, though with the nagging fear that it will some day be brought to light. Here is the major obstacle to post-treatment follow-up which can only be met by sympathetic understanding and intensive education of the public.

Irrespective of the private practitioner's thinking and the patient's wishes the public has an established and unquestioned interest in the success of treatment, or its failure. Infectious or serorelapse following treatment for acute syphilis is of concern, and agreement can and must be reached between health officers and private physicians on how best to implement post-treatment observation. Infectious relapse aside, the taxpayer has a stake in the success or failure of antisyphilitic treatment in terms of serorelapse, persistently positive blood tests, or a rising or continuous elevated serologic titer and their significance related possibly to the late manifestations of the disease. Who but he pays for the support of the chronically disabled syphilitic person who for years may be an inmate in one of our public hospitals (*3*, *18*)!

Education of the Physician

By nature the professional man is and must be an individualist. To be effective he can not and should not respond to mere edict and must

have instead an appeal to reason. Admittedly, any physician is capable upon theoretical reasoning to arrive at the conclusion that case finding offers a means of eradicating syphilis. On the other hand, it is expecting too much of a busy doctor, untutored in epidemiologic methods, to carry out contact investigation.

Education and reasoning are complementary. Thus, education holds the key to success in motivating the thoughtful physician to his responsibility in the program to eradicate syphilis.

Continuing education is predicated upon knowledge of basic concepts and subsequent experience. Ignorance in fundamental knowledge and inexperience demand a different approach. The validity of this thought is well demonstrated among the medical graduates of the past decade. Many of us have found each year patients in our university hospitals, either in the outpatient clinics or on the wards, with manifestations of acute syphilis unrecognized by undergraduates, members of the house staff and younger attending physicians. And acute syphilis, if recognized as such or diagnosed for them, prompts neither thought nor action with respect to contact investigation. As a disease fades from view it is natural that less time is devoted to it in undergraduate and graduate instruction in an already overly-full and expanding curriculum. It is logical then to give no more than a nod to smallpox, since the vigilance of the U.S. Public Health Service at our borders will preclude experience with the disease for almost the whole of our doctors. But a similar attitude with regard to the great-pox is unrealistic—a disease not from foreign lands, but one commonly hidden and endemic in every community and fed by basic and often uncontrollable sexual drives. Therefore it is neither irresponsible nor extraneous to inquire of our negligence and of our responsibility as medical educators in the rising incidence of syphilis. Frankly, speaking of an institution which had a most creditable teaching program in syphilis until 10 years ago, the students in recent years have, for practical purposes, learned only of the existence of syphilis as a disease when a patient with lesions of the cardiovascular or central nervous system has been presented for discussion. As admissions of new patients to our Syphilis Clinic dropped from 200 to some 25 patients per month, it was eventually decided to close the clinic a decade ago. Subsequently decisions were made to curtail even the teaching hours for syphilis in the curriculum until, over the past several years, there has been no organized effort for instruction in the clinical aspects of the disease. To be sure, by a seminar discussion, attention is directed to the epidemiology of syphilis in the course in Preventive Medicine. (It seems imperative to admit such an intimate but catastrophic experience to illuminate the educational deficiencies in our medical schools and to indicate what may happen even to a highly satisfactory educational program.) I find no definitive information upon the frequency of a similar apathy in other medical schools, though casual inquiry among house officers from other schools, and inquiry in general, bear out my impressions of the inadequacy of instruction in syphilis in many of our best medical schools today. I do not doubt that the word "syphilis" and certain facets of the disease are mentioned somewhere in the undergraduate's course, under dermatology at one school, in medicine at another, and in preventive medicine at still another. But one wonders how many, or rather how few places remain in which the undergraduate learns to know of syphilis in a broad clinical setting, and of a disease whose victims, or those close to them, give the budding doctor an insight into the whole play of human emotions, anxiety, disappointment, disillusionment, hate, bitterness, magnanimity and love, better even in some respects, and this is said advisedly, than an experience in a psychiatric clinic.

Correction of some of the current glaring deficiencies in medical school curricula, as related to this disease, should be urged by the organizations and agencies sponsoring this Forum, with representations to the Association of American Medical Colleges and the Council on Medical Education and Hospitals of the American Medical Association as well as to deans of medical schools.

Recognizing the paucity of instances of early syphilis in the clinics of many university hospitals, as in our own, I suggest that we recall the words of Mahomet, "If the hill will not come to Mahomet, Mahomet will go to the hill." The thought is that in cities in which medical schools exist and the clinical cases of syphilis are few, the health officer should *invite* members of the faculty of the responsible department and selected medical students to his venereal disease clinic for clinical experience, teaching and a demonstration of epidemiologic methods and, above all, in the patient-interview. (Aside from the disease itself this will give the student an insight into interpersonal relationships available in no other area of clinical medicine.) A half-dozen sessions by a third or fourth year student in such a clinic would

never be forgotten. Nor is it necessary that all students have this experience. I have found over the years that the exposure of, say, a third of a class to a concept or viewpoint extends by "osmosis" in varying degrees to other members of the class, a process which could be sharpened if these students were asked to use their experiences for participation in a teaching exercise, say in preventive medicine. Thus, I divide the responsibility of an extension or revitalization of undergraduate teaching between the medical school and the local public health departments, if the circumstances demand it. The presence of faculty and students underfoot is an admitted nuisance in the V.D. Clinic. Yet experienced teachers must accompany the undergraduates so the student's experience is more than an "afternoon off", lolling about a clinic while a busy health officer is carrying out his duties, even though he may take a few moments to "show" the students a penile chancre. I predict that if a brief assignment in the V.D. Clinic of the local health department is offered as an "elective" in the curriculum, it will be selected as an experience by a goodly percentage of the class.

I pause a moment to extend the use of the health clinic not only as a place of undergraduate education, but also to a place of graduate instruction. It would be well for a resident in medicine, or pediatrics, or dermatology to join the faculty representative and the students in the clinic—especially the resident leaning toward an academic career, since he will be the better teacher for this experience. Many a resident, after having served in our Syphilis Clinic in the dim past, enthusiastically realized then, and even reminds me as we meet today, of some of Osler's thought expressed in his aphorism, "Syphilis simulates every other disease. It is the only disease necessary to know. One then becomes an expert dermatologist, an expert laryngologist, an expert alienist, an expert oculist, an expert internist, and an expert diagnostician."

This talk of the responsibility of the medical educator, if implemented, will make the task of the public health officials simpler in a decade hence. But it will not answer today's problems of checking the increasing incidence of syphilis. Public health officers and medical associations, with assistance from medical schools, will need to embark upon an active program of physician education. This can be of the *continuing* variety for the doctors graduated before or during World War II. For most of those graduating since that time it will need to be truly *post-graduate* education. From long distance telephone consultations with former students and house officers, I know this division is sound. If the doctor at the other end of the line is well grounded in knowledge of the natural history of syphilis, the significance of serologic tests, and its epidemiology, the consultation is well underway early in the conversation. On the other hand, if the physician is a more recent graduate with ignorance of basic information, a telephone consultation is all too often useless and even dangerous, because of a lack of understanding and misinterpretation, and in the cause of safety requires a follow-up letter with explanations in black and white.

There is need for a broad scale program of education to be directed to the practitioners of the country. It must be of such content that the knowledgeable graduate of 10 or more years ago will have his knowledge and experiences renewed, and that the graduate of the past decade, probably highly ignorant of syphilis and inexperienced, will learn something of the disease. Possibly the educational approach should be directed to the latter, and accept the boredom of the former who reacts with "this is old stuff."

Some will disagree with an educational approach and favor instead one by rule of thumb—the treatment is "thus and so," and an interviewer shall be introduced to *every* person having a positive blood test or history of treatment. To me as a teacher of many years this is as unacceptable as a dictum that everyone who has a nonvisualized gallbladder should have a cholecystectomy. I reiterate that a professional man "should not respond to a mere edict and must have instead an appeal to reason." The doctor then should play his part in the control and eradication of syphilis within the framework of an understanding of the biology of the disease—in terms of infectivity, relapse, intrauterine transmissibility, latency, and possible progress to serious disease of the great vessels, the nervous system and other organs. Only then do serodiagnosis, therapeutic regimens, post-treatment observation and epidemiologic methods make sense. Only then will patients be spared unnecessary treatment and anxiety, and embarrassment by needless epidemiologic investigation. (Syphilis is still the disease whose diagnosis is accompanied often by an emotional impact second to none!)

When this has been accomplished, the practicing physician either as an individual or through his local medical organization, can join the

health officer in another important step in the eradication of syphilis—the education of the public.

Summary

I have made the following points concerned with the responsibilities of the private practitioner in a national program for the control of syphilis:

1. There has been a reiteration of, or emphasis upon the consensus that any program of syphilis control or eradication must be pivoted, at least in the United States, upon the doctor in private practice. The reasons for this have been presented.

2. The application of the methods of case finding developed and proven in the public clinics must now be oriented to the private physician. The inherent difficulties posed and the methods used to overcome these have been considered and expanded.

3. The need for adequate post-treatment follow-up has been re-emphasized, again appreciative of the inherent difficulties which hedge its implementation in private practice. Suggestions have been made to assist the private practitioner in this difficult responsibility to his patient.

4. Finally, proper attitudes and cooperation between health officials and doctors in practice can only be built upon a firm foundation of knowledge. Current deficiencies in undergraduate and graduate education with regard to syphilis must be corrected and, again, suggestions have been made of using the means at hand in this effort. The immediate problem of continuing and of postgraduate education of the physician in practice must be assumed by departments of public health, the associations sponsoring this Forum and medical associations and societies.

By an understanding consideration of the above facts and the implementation of the proposals and suggestions made, one may hope that the "responsibility of the physician in a program of syphilis eradication" will be recognized and accepted by the doctors of our country.

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The Attitude of Private Physicians Toward Reporting Venereal Disease

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ABSTRACT

Marked changes in way of ease and speed of V.D. therapy have in part resulted in inadequate and inconsistent reporting of cases by private physicians, at the same time greatly increasing the proportion of V.D. patients treated by private physicians. Also, a great number of cases of V.D. are treated "over the counter" by local pharmacists and are of course unreported.

Aside from reporting is the all-important element of contacts: how many will become infected by self-diagnosed and self-treated individuals?

The number of cases reported might be increased by 50 percent to obtain a more accurate figure of the actual number of persons infected with V.D.

One objection to the form for reporting V.D. in Washington, D.C., is that it calls for the name and address of the patient. Public health officials' approach toward infected patients has an aura of chastisement. The label of immorality and shame attached to those with V.D. must be overcome if progress is to be made in controlling the disease.

All patients admitted to hospitals should have routine serological tests, and all positive results reported to the health authorities.

A comprehensive and dynamic educational program must be developed for professional workers and the public, enlisting the help of churches, schools, service clubs, family and youth serving agencies, and all other organizations that can reach the masses.

Laws, up to the federal level, must be enacted to make reporting of V.D. cases compulsory everywhere.

Private physicians must constantly be reminded of four important facts: chain reaction in spread of syphilis, actual number of cases far outnumbers those reported, effective control and therapy techniques are available but not applied widely enough, and unless a vigorous program is undertaken the spread of syphilis may be accelerated.

The doctor's duty is to persuade his V.D. patients to agree to being interviewed by health department personnel in order to track down contacts.

SOMMAIRE

Les changements profonds qui sont survenus dans la thérapeutique des maladies vénériennes, en ce qui concerne sa facilité et sa rapidité, ont eu en partie comme résultat la déclaration insuffisante et irrégulière des cas par les médecins privés, et en même temps la forte augmentation du pourcentage de malades vénériens traités par ceux-ci. D'autre part, un grand nombre de cas vénériens sont traités "par-dessus le comptoir" par des pharmaciens locaux, et, évidemment, ne sont pas déclarés.

A part la question de la déclaration, il y a le très grand problème des contacts: combien de personnes deviendront infectées par ces individus diagnostiqués et traités par eux-mêmes?

Le nombre de cas déclarés pourrait être augmenté de 50 pourcent pour arriver à un chiffre plus exact des personnes effectivement atteintes de maladies vénériennes.

Une objection à l'encontre de la formule employée pour la déclaration d'un cas vénérien à Washington, D.C., est qu'elle requiert le nom et l'adresse du malade. L'attitude des fonctionnaires du service de santé publique à l'égard des malades est trop souvent empreinte de reproche. Le stigmate d'immoralité et de honte qui se rattache à ceux atteints de maladies vénériennes doit disparaître si on veut réaliser des progrès dans le contrôle de ces maladies.

Tous les malades admis aux hôpitaux devraient être l'objet d'examen sérologique automatiquement, et tous les résultats positifs communiqués d'office aux autorités sanitaires.

Un programme éducatif dynamique et de grande envergure doit être initié à l'adresse des travailleurs professionnels ainsi que du grand public, avec la collaboration des églises, des écoles, des cercles de soldats, des oeuvres sociales pour les familles et la jeunesse, et de tous les autres organismes susceptibles d'atteindre les masses.

Des lois, jusqu'au niveau fédéral, doivent être promulguées en vue de rendre partout obligatoire la déclaration des cas de maladies vénériennes.

On doit constamment rappeler quatre faits importants aux médecins privés: la chaîne de réactions dans la diffusion de la syphilis; le nombre réel de cas est vastement supérieur au nombre de cas déclarés; des techniques efficaces de contrôle et de thérapeutique existent, mais ne sont pas assez largement appliquées; et dans l'absence d'un programme vigoureux l'accroissement de la syphilis risque de s'accélérer.

RESUMEN

Una parte de las mejoras que han hecho que el tratamiento de las enfermedades venéreas sea fácil y rápido, ha dado como resultado que los médicos particulares reporten en forma inadecuada e inconsistente casos de enfermedades venéreas, al mismo tiempo que ha hecho que la proporción de pacientes al cuidado de médicos particulares aumente grandemente. Asimismo, muchos casos de enfermedades venéreas son

tratados informalmente por los boticarios del lugar y quedan, naturalmente, sin denunciarse.

Fuera de las denuncias, lo más importante es el contagio: cuántas personas serán contagiadas por aquéllas que se han diagnosticadas y tratadas a sí mismas?

Si se quiere obtener con más exactitud el número de personas contagiadas de enfermedades venéreas, se debe aumentar un 50% al número de casos denunciados.

Una de las objeciones en Washington, D.C., a la manera de denunciar enfermedades venéreas, es que hay que dar el nombre y la dirección del paciente. El trato que dan los empleados de la sanidad pública a los pacientes contagiadas, tiene un tinte de castigo. Hay que quitar la marea de inmoralidad y vergüenza de aquéllos con enfermedades venéreas si es que se ha de tener éxito en controlar la enfermedad.

A todo paciente internado en un hospital debe hacérsele el análisis serológico de rutina; todo resultado positivo debe denunciarse a las autoridades sanitarias.

Debe desarrollarse un programa educacional amplio y dinámico para profesionales y público en general, con la ayuda de iglesias, escuelas, clubes del ejército, oficinas de ayuda a la familia y a la juventud, y toda otra organización que pueda llegar a las masas.

Para hacer que las denuncias sean obligatorias en todas partes, deben dictarse leyes, inclusive leyes federales.

Debe recordárseles a los médicos particulares, constantemente, de cuatro hechos importantes: la expansión de la sífilis en forma de reacción en cadena; el número de casos reales sobrepasa lejos aquéllos denunciados; hay a la mano técnicas de control y terapéutica, pero no se las aplica en forma suficientemente amplia; y, a no ser que se lleve a cabo un programa vigoroso, la expansión de la sífilis puede acelerarse.

El deber del médico es el de persuadir a sus pacientes venéreos que permitan ser entrevistados por empleados del departamento de sanidad para seguir la pista a los contagios.

THE TITLE SUGGESTED by the program committee of this Forum for this presentation is an excellent one, and yet it bothered me quite a bit when I tried to evaluate it. Just what is the "attitude of private physicians toward reporting V.D."? Does not the title and subject matter in a way, put the proverbial cart in front of the proverbial horse? My personal feeling, as a busy practicing family doctor for almost a quarter of a century, is that I must begin with the "attitude of private physicians toward diagnosing or finding V.D."!

All physicians must surely know that the health laws in the states in which they practice require and recognize the importance of reporting communicable disease. The basis of such laws is each health department's need for accurate and detailed information about the size of a communicable disease problem which may confront its particular community at any given time. Only when the practicing private physician reports all newly diagnosed cases of such disease to his health department, can the staff of that department plan and put into operation adequate measures for prevention and control of venereal disease. Only then can it evaluate the success or failure of control measures in limiting the spread of the disease and the declining rate of morbidity.

Changes in V.D. Therapy and Control

The marked changes in therapy and control techniques in the care and treatment of venereal disease, especially those most frequently seen by the private physician, such as syphilis and gonorrhea, may be reflected in the inadequate and inconsistent reporting of V.D. by the private physician. Penicillin and other antibiotics replaced the arsenicals, sulfonamides, and local treatment measures. These procedures were, in turn, replaced by newer and more effective forms of penicillin and antibiotics. Treatment schedules were shortened from months and years to weeks and days. New techniques were developed and old techniques were refined and intensified. With the advancement of rapid therapy and out-patient management there has been a great increase in the proportion of venereal disease patients receiving care from private physicians.

Has the ease of treatment and access to the private physician, the shortened treatment schedule, together with the lessened cost of such private treatment, produced an Achilles heel in reporting V.D.? Has this simplicity of treatment of V.D. helped to foster the spread of gonorrhea and syphilis because of inadequate reporting by the private physician to local health authorities? To my knowledge no study has been focused on this point.

Reporting by Laboratories and Physicians

We are all aware that forward thinking legislators in some states have passed laws which require all laboratories and physicians to report all V.D. found in blood or other specimens sent to them for diagnosis. But what about those states where this is not a legal requirement? And what about those private physicians who are reluctant to have their findings related to the local or state health officer? And what

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about those who, if they do report their positive findings, insist that their patients not be contacted by the health officer in his effort to trace the source?

The rapid and dramatic changes in the treatment of the most prevalent venereal diseases, syphilis and gonorrhea, have posed serious and ambivalent problems as regards case reporting by the private physician. Complete morbidity statistics are all too difficult to determine. And what about the large percentage of those cases of syphilis and gonorrhea treated "over the counter", as it were, by some local druggists? Where are these statistics? How do we count the thousands of teenagers and oldsters so treated? It is very simple to purchase penicillin in tablet form or medication containing the triple sulfonamides with or without penicillin from some local pharmacists. How many thousand cases are so treated?

More crucial than failure of the pure statistical approach due to the numbers of cases of venereal disease not tabulated, is the all important missing link—the contact! To how many persons will those self-diagnosed and self-medicated infected persons present their disease before they know they have it, or while they are taking their own treatment? I would venture to say that if we were to take the actual number of V.D. cases reported and tabulated and add to this number approximately 50%, we might then have a truer and more accurate statistical figure. I have no survey figures to substantiate what I have just stated, but I do know in my own practice located in a city overrun with love-hungry women who outnumber the men by a ratio of 6 or 7 to 1, in an area close to a military installation where I used to see, report, and treat four or five cases of gonorrhea per week, I now see two or three a month. I feel certain that the males and females in my area are not practicing celibacy. These then are the statistical ghosts—not registered since they are more than likely drug store and self medicated.

In my own city, the very method of reporting V.D. helps to defeat the purpose of reporting. The lovely forms to be filled in by the private physician very boldly show the patient's name, address, and other pertinent information. I firmly believe that these forms should merely be numbered. If the patient whose smear or blood sample is taken can see that his or her name is not on the record to be seen by public health or laboratory personnel, both the private physician and the patient would be much happier and much less reluctant about reporting V.D. Only the physician would know the identity of the individual whose numbered test results were made available. The psychological and sociological stigma of V.D. have not been overcome at this time, perhaps they never will be. Therefore it is the duty of the private physician, working with public health officials, to show them how to ease the minds of the patients so infected.

Social Obligation

Public health officials have not promoted the idea of helpfulness of social obligation. The approach to the doctor in private practice and to the patients infected has had the aura of chastisement. It has produced a guilt complex in the minds of many patients. How many times have patients with suspected venereal disease asked me "Doctor, you are not going to report this to the health authorities?" or "You don't have to report this to anyone?" What can the private physician say to these queries? The answer is rather simple. I have done a small survey with a few patients in this manner. I tell the patient that I will use a fictitious name and address and report his case to the health department purely for statistical records. When I show the patient the form done in this manner he is not only grateful, but is willing to tell me the possible contact! In many instances they even bring the suspected contact to my office for examination. In questioning patients I have found that if their names and addresses were omitted completely from the report to the health authorities they would be more than happy to have their cases so reported and to help contact their source of infection. I firmly believe there must be a totally and completely new approach to V.D. reporting in patient and doctor education and orientation. The stigma in the minds of many persons about psychiatric treatment has been reduced to a bare minimum. Likewise the label of immorality and shame attached to those with V.D. must be overcome if we are to make any progress in eradicating or controlling these diseases.

Routine Serology for Hospital Patients

The relationship of the private physician in treating his patients in the hospital has always been excellent. Many years ago I suggested that all patients admitted to hospitals for care —no matter what the reason for admission— should and must have a routine chest X-ray. Many hospitals throughout this country now

do this (*1*). It is routine procedure in all accredited hospitals to do a complete blood count and urinalysis on all patients admitted. This is excellent. I would suggest that all patients admitted for hospital care have a routine serology done. We might very well be shocked by the number of cases of syphilis we have missed these many years. This to me is sheer neglect on the part of the attending physician (including myself) and the hospital laboratory. Many patients found to have positive serologic tests for syphilis upon admission to hospitals are never diagnosed and treated, and again, many patients diagnosed and treated are not reported. There are several reasons for this. Perhaps, in some instances, the hospital laboratory does not inform the doctor of its finding. Perhaps the physician overlooks the report on the patient's chart. Perhaps the patient is discharged before the laboratory results are entered on the chart or the test results known. This is unforgivable. Whatever the reason, it does a grave injustice to the patient, the family and the patient's possible future contacts.

If the serology test is done after the patient has been hospitalized for any length of time, he may have had enough injections of penicillin and other antibiotics for other illnesses to produce a false or misleading serologic report, but quite inadequate to treat the V.D. In many instances the physician assumes that the hospital will report the serology findings when positive for V.D., while the hospital laboratory will assume that this is the duty of the attending physician. Thus neither reports the case finding.

Need for Dynamic Educational Program

A comprehensive and dynamic educational program must be developed for professional workers, physicians, nurses, and for the public, especially for persons in the younger age groups most likely to contact venereal disease. Cooperation should be sought from churches, schools, service clubs, family and youth serving agencies, and through any other fashion to reach the mass of our population. State health agencies must bring about the enactment of local, state or even federal laws or regulations which require reporting of all discovered cases of V.D. There are approximately 350,000 persons who show a positive test for syphilis but are not now receiving treatment—and perhaps never did. Of this group approximately 3,500 persons have infectious syphilis (*2*).

The attitude of the private physician toward reporting V.D. would be greatly improved if more and more direct mail from health authorities to the private physician presented the frightening facts and figures as to the rise of V.D. in this country in the past few years. The private physician must constantly be reminded of four important facts:

1. Evidence of a chain reaction in the spread of syphilis infection, especially among teenagers.
2. Evidence that the actual number of cases occurring far outnumbers the cases reported.
3. Evidence that effective techniques of control and therapy to stop the spread of syphilis are available but not applied widely enough.
4. Evidence that unless a vigorous, stepped-up program is inaugurated now, the increased spread of syphilis currently being observed may be accelerated.

The Task Force Report to the Surgeon General (*2*) continues with some interesting findings which are probably not known to many private physicians.

1. The 18,781 persons reported with infectious syphilis in the United States during 1961 were the greatest number of such cases reported in any year since 1950.
2. The rise in infectious syphilis has been particularly sharp since 1959, and a more than 50% annual increase has been reported for each of the past two years.
3. Health officials have expressed particular alarm over the increase in syphilis among teenagers. Their reports show that between 1956 and 1960 there was a rise of more than 130% in infectious syphilis among persons under 20 years of age.

These facts should be enough to shock any private physician into a campaign of "syphilis-seeking" among his everyday patients. These facts must and should be advertised to every school teacher and parent in this country. Better yet, these facts must be brought to the attention of every high school and college student in our land.

Physicians must not be fooled by the patient (especially males) who come to them for a "shot of penicillin for a bad cold". People are highly educated about drugs today, and that "bad cold" could very well be a "sinus" drainage of the urethra without benefit of cough, fever, or bronchospasm. This particular patient is the champion spreader of gonorrhea. His attitude (or hers) may be, and in some instances is "I got it from someone, and someone is going to get it from me." These are the truly dangerous spreaders.

It is the duty, most often neglected, of the private physician to get permission from his patients found to be infected with V.D. to allow health department personnel to interview them. It is well known that many epidemiologic failures to the extent of one-fifth to one-fourth percent may be due to the private physicians' refusal to permit interviews with their infected patients. This is one area of the practice of medicine where the private physician needs a great deal of understanding and education about his responsibility to his patients, his community in general, and above all, his avowed duty to himself as a physician to heal and to prevent illness and disease.

Summary

Private physicians must develop an "attitude of diagnosing or finding V.D." before they can hope to report V.D. Changes in therapy and control techniques in the care and treatment of venereal disease, especially syphilis and gonorrhea, may be reflected in the inadequate and inconsistent reporting of V.D. by the private physician. Simplicity and ease with shorter term therapy has produced an Achilles heel in reporting V.D. The psychological and sociological stigma attached to V.D. must be eradicated by proper education of the physician and the patient. All cases of V.D. should be required by law to be reported to the proper health authorities. Patients admitted to hospitals should have a routine serology done and reported to the attending physician as well as the local or state health authorities. Patients reported with V.D. must remain anonymous and listed by number only. This will produce a better rapport between the patient, his physician and the health authorities. More stringent laws are necessary to deter the few pharmacists who sell antibiotics over the counter for self-medication to many patients with V.D. It is essential that more and more direct mail showing facts and figures about V.D. be publicized to the private physician to alert him of the need for his ever watchfulness in finding V.D.—and reporting V.D.

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Legal Basis for Syphilis Control

EDWARD F. TUERK

ABSTRACT

The legal basis for syphilis control lies in the general power and responsibility of the State to provide for public safety, health, and morals. Specific legal powers of health authorities to exercise this power derives from State legislative bodies through enactment of legislation.

It is suggested that reporting laws dealing with venereal diseases be revised if necessary to assure confidentiality.

At present, 15 States require all laboratories to notify the health authority of any positive finding in a test for syphilis.

The quarantine and isolation provisions of state law should be reviewed and revised to incorporate the requiring of patients to accept treatment.

Venereal disease contacts can be required to submit to an examination when the health authority is possessed of facts which create reasonable grounds to suspect the presence of the disease. Caution must be exercised, however, since the imputation that a person is venereally infected may be libelous and prima facie actionable.

Reasonable uniformity is needed from one jurisdiction to another in premarital and prenatal blood test requirements.

Improvement in the legal framework can take place only after a careful review of existing legislation—on a state by state basis—with decision or amendments or repeal being made in the individual case.

SOMMAIRE

La base légale d'un contrôle de la syphilis repose dans les pouvoirs généraux de l'Etat et dans le devoir qu'a celui-ci de veiller sur la sécurité, la santé, et les bonnes moeurs publiques. Les pouvoirs spécifiques légaux des autorités de la Santé Publique, qui leur permettent d'exercer ce contrôle, dérivent des Corps Législatifs, de l'Etat, par l'intermédiaire de textes législatifs.

Il est suggéré que les lois touchant aux maladies vénériennes soient révisées, si nécessaire, afin d'assurer le caractère confidentiel.

A l'heure actuelle, 15 Etats exigent de tous les laboratoires qu'ils signalent à l'autorité sanitaire tout résultat positif obtenu à l'issue d'un test de dépistage de la syphilis.

La loi d'Etat prévoyant, à titre de précaution, la quarantaine et l'isolement devra être révisée et corrigée afin d'y incorporer l'obligation pour les malades de se soumettre à un traitement.

Les malades vénériens contagieux peuvent être astreints à se soumettre à un examen lorsque l'autorité sanitaire est en possession de faits qui permettent raisonnablement de suspecter la présence de la maladie. On doit cependant procéder avec précaution, car le fait de prétendre qu'une personne est atteinte de maladie vénérienne peut être diffamatoire et donner matière à procès.

Il est nécessaire qu'il y ait une raisonnable uniformité d'une juridiction à l'autre en ce qui concerne les conditions requises en matière de tests sanguins, avant le mariage ou avant la naissance.

Une amélioration dans la structure légale ne peut se faire qu'après une révision attentive de la législation en cours—en procédant Etat par Etat—par décision, amendement, ou abrogation effectué dans chaque cas particulier.

RESUMEN

Las bases legales para el control de la sífilis descansa en el poder general y la responsabilidad del Estado para proporcionar la seguridad pública, salud y moral. Poderes legales especificos de las autoridades sanitarias para ejecutar este poder proviene de los cuerpos legislativos del estado por medio de decretos de la legislatura.

Se sugiere que las leyes informativas que se relacionan con enfermedades venéreas sean revisadas si es necesario para asegurar confianza.

En el presente, 15 estados requieren que todos los laboratorios informen a las autoridades sanitarias de cualquier caso positivo registrado en una prueba de sífilis.

La cuarentena y las medidas de aislamiento de la ley del estado deben ser repasadas y revisadas para adicionar los requisitos que un paciente necesita para que acepte el tratamiento.

A quellos que han tenido contacto con las enfermedades venéreas se les puede exigir que se presenten a un examen cuando las autoridades sanitarias posean todos los datos que tengan las suficientes bases para sospechar la presencia de la enfermendad. Se debe tener cuidado, sin embargo, pues atribuirle a una persona una enfermedad venérea puede ser difamatorio y prima facie procesable.

Se necesita una uniformidad razonable de una juridicción a otra en los requisitos de pruebas sanguineas premaritales y prenatales.

Las ventajas de las disposiciones pueden tener lugar solamente después de un repaso cuidadoso de la legislación existente—a base de Estado por Estado—con decisiones o enmiendas o anulaciones hechas en casos individuales.

THE LEGAL BASIS for syphilis control lies in the general power and responsibility of the State to provide for public safety, health, and morals encompassed, in American constitutional theory, within the general concept of police power. The specific legal powers of health authorities to exercise this power derives from State legislative bodies through the enactment of legislation. Health agency rules are promulgated through codes of regulations specifying either, negatively, prohibitions against certain types of conduct, e.g., exposing another person to a communicable disease, or positively, by requiring the performance of certain duties, e.g., disease reporting.

Since it is recognized that the prevention and control of communicable disease is the first and most important duty of Public Health authority, let us briefly review the methods of syphilis control with relation to their legal status within the United States.

Reporting

Ever since the possibility of one person transmitting disease to another has been recognized, the reporting of the existence of cases of infectious disease has become the prerequisite for control activities. Historically, disease reporting is a relatively new phenomenon with the first comprehensive notification system having been adopted in the United States in Michigan in 1883. In general individual case reports are considered as administrative and not public records, with disclosure being prohibited to unauthorized persons. However, there are many exceptions to this general rule and the nature of venereal disease transmission suggests that all reporting laws dealing with these diseases be reviewed and revised, if necessary to assure confidentiality. Prior to the initiation of present epidemiologic programs, most States permitted reporting by number or initial rather than the name of the patient. It is evident that these procedures defeat the very purpose of venereal disease reporting as the first step in the epidemiologic control process.

Diagnostic Laboratories

Private laboratories established for commercial purposes may be regulated by the State. This is particularly true when the State requires premarital or prenatal blood tests and licenses laboratories for this purpose. In syphilis control a positive laboratory finding on any specimen automatically creates a venereal disease suspect with follow-up activity being initiated. At present, some 15 States require all laboratories, private as well as public, to notify the health authority of any positive finding in a test for syphilis, which significantly increases the number of syphilis suspects for health department action. These requirements are considered extremely desirable for any comprehensive program designed to reduce the incidence and prevalence of the disease.

Isolation and Quarantine

The quarantine of infected or exposed individuals is perhaps the most classic example of the exercise of Public Health power having been frequently used in seaport cities throughout the world against the black plague, cholera, yellow fever, and other diseases from the 14th Century on. Technologic developments have modified greatly the impact of quarantine action in health programs. With effective treatment and consequently reduced periods of infectiousness, the actual physical isolation of infected or possibly infected individuals is no longer their *sine qua non* of disease control. In the venereal, as in the other communicable diseases, isolation and quarantine are still provided for in health department codes and regulations. With the advent of long acting penicillin the possibility of antibiotic quarantine becomes practical for both the infected person and his contacts. The treatment of contacts can likewise be so justified. The quarantine and isolation provisions of State law should be reviewed and revised if necessary to incorporate these features.

Examination of Contacts and Suspects

Venereal disease contacts and other suspects can be required to submit to an examination for the presence of the disease in any instance when the health authority is possessed of facts which create reasonable grounds to suspect the presence of the disease. This would include persons named as contacts and persons on whom a positive diagnostic test was performed. It would appear that the naming of a person as a contact by an infected patient would create such reasonable grounds whether or not that person was, in fact, a contact to the infectious case. Caution, however, must be exercised since the imputation that a person is venereally infected may be libelous and prima facie actionable.

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Premarital and Prenatal Tests

The basic interest of the State in the marriage of its citizens is expressed in the almost universal requirement for the issuance of a marriage license prior to the performance of the ceremony. To demand that each of the marriage partners prove himself free of certain diseases is a reasonable condition of marriage, and since marriage, by its very nature, produces the intimacies required for venereal disease transmission, requiring evidence of freedom from these diseases is consistent with State interests and responsibilities. Prenatal blood test requirements are likewise consistent with these interests and responsibilities. What is needed is reasonable uniformity from one jurisdiction to another in these laws—a uniformity based upon the current state of medical and technical knowledge regarding the venereal diseases.

Summary

In summary, let me say that the broad principle upon which Public Health rests is that every member of the community is entitled to protection in regard to his health just as much as he is entitled to protection in regard to his liberty and his property. This principle vests in the State responsibilities to take action, within the limits of technical knowledge, to maintain health standards. In syphilis control, the current state of knowledge and program development requires the conduct of meaningful programs of case detection and treatment, patient interview, and contact and suspect follow-up.

The broad principles of Public Health likewise vest in the State authority the right to impose reasonable controls upon individual behavior and to require the performance of certain duties by physicians, laboratory directors, and others in the area of case and suspect reporting. Since it is evident that it is impossible to legislate effectively against the acts which lead to venereal disease transmission, the regulatory activity must relate to the disease rather than to the act.

Administrative discretion is the essence of the modern State. In Public Health technologic breakthroughs are constantly changing and enlarging this discretionary area. The legal framework for the conduct of syphilis control programs must guarantee the flexibility that is essential to permit the incorporation of new or more effective control techniques into the basic program.

If the venereal diseases were new diseases, or if there were no Public Health laws presently relating to them, model statutes and implementing regulations could be developed. But with the welter of existing legislation and regulation, much of it out of date by reason of technologic developments, improvement in the legal framework can take place only after a careful review of existing legislation—on a State by State basis—with decision or amendments or repeal being made in the individual case.

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Role of the Public Health Physician in Syphilis Control

OTTO RAVENHOLT, M.D.

ABSTRACT

The universal nature of syphilis dictates control efforts equally unrestricted by geographical, social, economic, or cultural boundaries.

The most significant factor in syphilis control is the public health physician.

The diagnosis and treatment of syphilis in the past decade have been characterized by (a) the increased mobility of the population, making it harder to detect sources of infection; and (b) by antibiotic therapy, which has greatly facilitated and hastened the cure of individual patients. Pertinent factors in the incidence of the disease are increased urban residence, greater freedom of the individual from family control, and strong emphasis on sexual relations, particularly among the young.

The greater difficulty of detecting infectious contacts increases the importance of routine screening of individuals, particularly through laboratory tests the results of which are reported to the public health authorities.

The public health physician's role is to:

1. Lead in creating larger areas of effective syphilis control programs;

2. Lead in designing and executing local control programs;

3. Forthrightly proclaim that the nature of syphilis requires that a control program be community-oriented to be effective;

4. Carry on an educational program in the community.

SOMMAIRE

La nature universelle de la syphilis réclame des efforts de contrôle qui soient également libres de toute entrave géographique, sociale, économique, ou culturelle.

Le facteur le plus important dans le contrôle de la syphilis, c'est le médecin du service de la santé publique.

La diagnostique et le traitement de la syphilis depuis une dizaine d'années se caractérisent par (a) la mobilité accrue de la population, ce qui rend plus difficile le dépistage des sources d'infection; et (b) par la thérapeutique antibiotique, qui a grandement facilité et hâté la guérison des malades individuels. Parmi les facteurs significatifs dans l'incidence de la maladie sont l'accroissement de la population urbaine, une plus grande liberté de l'individu par rapport au contrôle familial, et le poids accordé aux relations sexuelles, surtout parmi les jeunes.

La difficulté accrue de dépister les contacts infectieux augmente l'importance du triage routinier des individus, particulièrement au moyen d'examens de laboratoire dont les résultats sont communiqués aux autorités du service de la santé publique.

Le rôle du médecin du service de la santé publique consiste à:

1. Encourager l'adoption de programmes de contrôle de la syphilis dans des territoires plus étendus;

2. Assumer la direction pour ce qui est de formuler et d'exécuter des programmes de contrôle sur le plan local;

3. Proclamer hautement que la nature de la syphilis exige qu'un programme de contrôle soit orienté vers la communauté afin d'être efficace;

4. Mener un programme éducatif dans la communauté.

RESUMEN

Debido a que la sífilis es de naturaleza universal, los medios para controlar la enfermedad deben estar libres de límites geográficos, sociales, económicos y culturales.

El médico de salud pública juega el papel más importante en el control de la sífilis.

El diagnóstico y tratamiento de la sífilis en la última década se ha caracterizado por (a) el aumento del afán de la población por viajar constantemente, por lo que se hace más difícil localizar las fuentes de infección, y (b) la terapia antibiótica, que ha facilitado y acelerado enormemente el restablecimiento de los pacientes. Entre los factores que influyen en la incidencia de la enfermedad se pueden incluir: el aumento de zonas urbanas residenciales; mayor libertad individual debido a que la familia hoy día ejerce poco control sobre sus miembros, y el énfasis que se le está dando, especialmente entre los jóvenes, a las relaciones sexuales.

Debido a que se está haciendo más difícil descubrir los contactos infecciosos, ha aumentado la necesidad de realizar investigaciones minuciosas y rutinarias de personas, especialmente por medio de exámenes de laboratorio cuyos resultados se notifican a las autoridades de salud pública.

La función del médico de salud pública es la siguiente:

1. Orientar la creación de zonas mas amplias donde se ejerza un programa adecuado de control de la sífilis;

2. Orientar el planeamiento y ejecución de programas locales de control;

3. Anunciar abiertamente que, dada su naturaleza, la sífilis requiere un programa de control dirigido hacia la comunidad entera, si es que se desea lograr éxito;

4. Llevar a cabo programas educativos en la comunidad.

SYPHILIS, as some other human maladies, provides a unique parameter about which to measure the forces of history. This disease has respected no geographic, social, economic or cultural barriers. Study of its spread leads the student from country to country, through medieval wars, royal households, mass pilgrimages, and over routes of trade by land and sea, as they changed with each human generation. In the recent two great wars the disease has documented intercourse between military personnel and indigenous populations around the globe. This characteristic of world-wide distribution of the disease persists today and dictates the need for control efforts being equally wide in scope, unrestricted by geographic, social, economic or cultural boundaries.

Importance of Public Health Physician

The strength of a program, such as that for syphilis control, is much influenced by its design, by economic support, and by various characteristics of the community in which it operates. The most critical element determining the success of a program, however, is the people who work in it; and while there are several groups of people involved in syphilis control, none is more important than that of the public health physicians. The briefest review of syphilis control in the past half-century will demonstrate the importance of the role that has been played by them in design and execution of programs for control of the disease. The outstanding example of this in the United States was the work of Dr. Thomas Parran and his colleagues in identifying "social disease"—that much confused, much suffered and much exploited illness—as syphilis, a disease in need of an open, forthright public health program for its control. Their dictum for cure was simple—"find and treat." Their method was elementary: educate all concerned, whether private citizen, professional worker or public official. The public health physician of today can choose no better goal. His role in trying to "find and treat," and to educate is dictated by the changing problems in syphilis control.

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Decade of Change

Remarkable improvements of the past decade in the potential of treatment for this disease have been accompanied by changes in human living patterns, which are no less remarkable. The time required for cure of syphilis has been dramatically shortened. A generation ago, it required treatment of many weeks' duration, while today a single injection will arrest the disease in its early stages. The antibiotic era has, indeed, solved the treatment problem. But, likewise, a generation ago, travel between continents required weeks of time, exceeding the incubation period of this disease and often permitting ship and immigration authorities to identify the infected individual. Today, such travel requires but hours of time, making it impossible to identify a newly-infected traveler at the time of his return or entry to a country. Within each country similar changes have occurred. Mobility has increased until it is now commonplace, at least in the United States, for individuals to change residence frequently, to travel widely in their daily work, and even to fly or drive from one city or state to another and back again for a single night's entertainment. This change in human mobility is making it more difficult to "find" the disease by tracing contacts of the known infected individual. Of similar importance no doubt are other changes in community life today. These include especially a marked increase in urban population, greater freedom of the individual from family control (or perhaps one should say less support for the individual from the family), and strong emphasis upon romantic male-female relationships directed especially at the young. A syphilis control program must be adjusted to these changes in private and community life.

Reporting and Contact Tracing

The greater difficulty encountered in finding the sex contacts of a newly-infected person increases the importance of routine screening of individuals to identify those missed through contact investigation. Improved methods for identifying the infected person have been found in better laboratory tests. That these have not produced the gains which were expected is because we have failed to complement them with adequate programs of application, and because we have failed to get reports of positive

tests found with existing procedures to public health personnel who can trace the contacts. New and simpler tests, such as the card test, may enhance our capacity to identify the disease, but they, too, must be part of a comprehensive reporting and contact-tracing program if they are to be of maximal value in controlling syphilis. The time has long since come, at least in the United States, when reliance upon private physician reporting should be reinforced with the legal requirement that private laboratories report positive tests. The followup contact of such reports can then be through—and with the support of—private physicians. The theoretical difference between the direct laboratory reporting system and the physician reporting system is minor; the practical difference is that the former works and the latter does not. The laboratory can easily identify all positive reports and provide a routine copy to the Public Health Department. Once laboratory reporting is established, there is little difficulty of education or initiative in this system. Individual physician reporting requires that initiative be taken by each physician when the disease comes to his attention. Operation of this system requires a continued, vigorous educational effort and is even then inconsistent. Cooperation tends especially to decrease as a physician sees less of the disease and it, therefore, appears to him of less importance to the community. It is time that the difference between these two systems of reporting was made reason for obtaining legal requirement for laboratory reporting in each state. A control program must meet this problem if it is to "find" the disease.

Dynamic Community Education

Dr. Parran and his colleagues built their control program upon a foundation of education and this remains the basis of any durable, effective program. Every living biologic population is a dynamic, changing entity. The population of each country and of this world is no exception. Each year brings into the community a new increment of infants, of adolescents and of adults, as that year also removes its timely share of older members. New members steadily replace the old. Knowledge of syphilis, its symptoms and control problems held by any cultural community or national population at one point in time tends, therefore, to be lost with time in the absence of special efforts to transmit such awareness to new members of the community. This fact creates a paradox: the closer a syphilis control program comes to complete success, the greater is the likelihood of a resurgence of the disease. In the past decade we have seen this demonstrated in the United States. Penicillin therapy and contact-tracing brought dramatic reduction in syphilis incidence. The battle had been won—or so many people presumed. Quite naturally, those providing public funds for control of syphilis felt less need to continue vigorous support of the program. Quite naturally, too, newcomers to the medical scene, including physicians, learned less about syphilis and became less concerned with it. Thus, as the menace of the disease diminished, so, too, did support for control programs. This weakening of the control effort, combined with conditions cited earlier which promote spread of this disease, invited the present problem—the recent substantial increase in early syphilis infections. An effective program must solve this dilemma.

Summary

What, then, is the role of the public health physician in this picture? It is a critical one which may be summarized in the following points:

1. He must lead in creating larger areas of effective syphilis control, bridging the gaps between geographic, cultural, social and national groups. In some regions this now exists; in many it does not. So long as reservoirs of the disease persist in some population groups with no immunization technique available, control of the disease in every other population group will remain uncertain.

2. The public health physician must lead in designing and executing local control programs. These must coordinate efforts of all trained specialists in this field with the best possible interviewing and reinterviewing of patients and prompt and thorough investigation of contacts. When the infected people are found, these programs must ensure adequate drug treatment of them. I should like to add, that while the public health physician has a duty to stimulate an effective program, he—because he is first of all a physician with broader obligations—must also set limits upon the type of techniques used and upon the extent of their application in the pursuit of this disease.

3. The public health physician must forthrightly proclaim that the nature of syphilis and of the personal contact by which it is spread requires that any control program be community-oriented for it to be effective. Many infected individuals fail, because of the innocu-

ous signs of syphilis during its contagious stage, to seek medical care for their illness, while continuing, in fact, inter-personal contact known to spread the disease. The public health physician must clarify that treatment of those infected persons who do seek medical assistance, whether public or private, cannot by itself control spread of syphilis. The need for patient interview and for prompt contact investigation is known by many private physicians, but it has not been equally well encouraged by them. The basic reason for this is a lack of community perspective, resulting from the private physician traditionally orienting his activities about the individual patient. Efforts to develop effective liaison between these physicians and the public health program are complicated today not only by this natural bias, but also by reactions of the private physician who sees long-established prerogatives threatened by current economic, social and political forces. The objective of sustaining effective relationships between the private physician and the public health program will, therefore, require vigorous, skilled attention in the coming years. The task of coordinating public and private medical efforts for improvement of health on a comprehensive community basis falls naturally within the scope of the public health physician's role.

Finally, the public health physician must address himself to the education of the dynamic community. He must promote the communication of knowledge of syphilis, its symptoms, signs and control problems, from old to new members of the community—be they private citizens, political leaders, or professional workers. By this means he must ensure that the program for syphilis control and eradication is sustained when the rising incidence of this disease again yields before renewed control efforts.

Thus, the role of the public health physician in syphilis control today is as broad as the related problems. It is a vital role, but it is not the only one. Accomplishment of the control objective will require the very best efforts of all concerned—other public health people in official and voluntary groups, private health personnel, community leaders, and private citizens. Only then, by mutual effort, can we emerge from what Dr. Parran, a generation ago, so rightly termed, "a shadow on the land."

Role of the Public Health Laboratory Director in Syphilis Control

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ABSTRACT

The Public Health Laboratory Director is responsible for the performance of a high level of blood test accuracy, the development and maintenance of efficient recording and reporting of laboratory results and all the other logistical elements that go into effective participation. He must maintain an interest in the participation of his laboratory in new discoveries and research.

Great authority and respect are given to the State Laboratory in the field of syphilis testing.

Venereal Disease Control is built around State functions with federal assistance. Syphilis is eradicated by the following means: In case finding by clinical and serological testing; by diagnosis and case reporting; and by utilization of modern techniques of epidemiological investigation. Private or institutional laboratories of many States do not necessarily report test reactors. If necessary, the State Laboratory Director can exert his legal authority to compel reactor reporting.

The epidemiological services must maintain regular liaison with the Laboratory Director in order to attain the most effective use of facilities for testing.

SOMMAIRE

Le Directeur de Laboratoire d'hygiène publique est responsable de l'accomplissement des examens du sang avec le maximum de précision, la mise au point et du maintien à jour d'un enregistrement efficace des résultats obtenus au laboratoire, ainsi que de tous les autres éléments logistiques entrant en jeu pour aboutir à une contribution active. Il doit avoir à coeur la participation de son laboratoire aux découvertes nouvelles et à la recherche.

Le Laboratoire d'Etat jouit d'une autorité et d'un respect considérables dans le domaine des tests syphilitiques.

La Lutte contre les Maladies Vénériennes est organisée sur la base des fonctions de l'Etat, avec l'aide du gouvernement fédéral. La syphilis est combattue par les moyens suivants: dans le dépistage des cas, par des tests cliniques et sérologiques; par le diagnostic et la déclaration des cas; et par l'emploi de techniques modernes d'étude épidémiologique. Dans bien des Etats, les laboratoires privés et les laboratoires d'institutions ne déclarent pas toujours les cas de réaction positive. Le Directeur du Laboratoire d'Etat peut, s'il est nécessaire, exercer l'autorité que lui confère la loi pour rendre cette déclaration obligatoire.

Les services épidémiologiques doivent rester régulièrement en liaison avec le Directeur du Laboratoire pour obtenir le meilleur rendement possible de l'équipement de tests.

RESUMEN

El director de un laboratorio de salud pública tiene la responsabilidad de la ejecución de los analisis de sangre con un alto nivel de precisión, dirigir el funcionamiento y mantenimiento de un servicio eficiente de archivos y de notificación de los resultados y de otros elementos relacionados que contribuyen a un servicio eficiente por parte del laboratorio. Debe mantener el interés en cuanto a la participación de su laboratorio en nuevos descubrimientos e investigaciones.

El laboratorio del estado es acreedor a la autoridad y al respecto en el campo de pruebas de sífilis.

El control de las enfermedades venéreas gira alrededor de las funciones del estado y recibe ayuda federal. La sífilis se erradica de las siguientes maneras: Descubrimiento de casos por medio de pruebas clínicas y serológicas; diagnóstico y notificación de casos y utilización de técnicas epidemiológicas modernas de investigación. Muchos laboratorios privados o pertenecientes a determinadas instituciones de un estado no notifican necesariamente los resultados de pruebas obtenidas de pacientes con reacción positiva. De ser necesario, el director del laboratorio estatal puede ejercer autoridad legal para obligar a la notificación de casos positivos.

Para obtener el mejor rendimiento de las facilidades de que se dispone para pruebas es necesario que los servicios epidemiológicos mantengan enlace constante con el director del laboratorio.

HISTORICALLY, the Public Health Laboratories in most instances began serological services to aid in the diagnosis, treatment and control of syphilis within a brief span of years subsequent to the development of the serological test for syphilis by Wassermann and Bruck (1906). My personal experience with these tests covers a span of 45 years, starting with World War I. Only a few years later, I had contact with the laboratories I now direct and found they were rendering serological services

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of a highly reliable order. During those early years, we saw a large number of cases of primary syphilis and our competence with the darkfield examination was equal to the occasion. In the years that intervened this became a lost art and I am glad to note its revival.

As the increase in the use of the serological tests grew, the Public Health Laboratories maintained their leadership in the development and adoption of the more specific and sensitive tests that grew out of the original Wassermann technique. Mass production of tests enabled such control laboratories to devote time and effort to standardizing techniques which were not readily available in laboratories performing relatively few tests.

The United States Public Health Service, through its establishment of the Venereal Disease Research Laboratory, advanced the cause of syphilis serology by the development of standardized reagents and techniques that yielded a high order of reliability. A new era was born in the serological laboratory. The increasing volume of specimens coming into State Laboratories throughout the country enabled them to become the crucible in which all serological procedures had their baptism of fire.

No other human disease is so dependent on the results of laboratory testing as syphilis, the great masquerader. In the years that have passed, clinical acuity has been dulled, if not lost, on the dependence of the medical profession on the laboratory test. As with other diseases (malaria, parasitism, etc.), the laboratory assumed the leadership and dominated the whole structure of venereal disease control. The large share of responsibility assumed by all State Laboratories is an historical fact. The whole system of venereal disease control grew up around laboratory data. By the time it became permissible to use the word "Syphilis" in public utterances and places, the State Laboratory had already established itself as the most dependable facility for case finding. Venereal Disease Control then assumed a leadership in applying epidemiological principles to its main function—which we speak of today as the "Eradication of Syphilis."

Provide High Quality Laboratory Service

With this lengthy foreword, for which I must apologize because of its triteness, we must now answer the question: What is the role of the Public Health Laboratory Director in the control of syphilis? That he must assume the leadership for maintaining a high quality of laboratory services is a *sine qua non*. Furthermore, his responsibility extends to the development and maintenance of efficient recording and reporting of laboratory results and all the other logistical elements that go into effective participation. He must maintain a proper balance of the service element of his program and an inquisitive interest in the participation of his laboratory in new discoveries and research. He must be in a position to consult with clinicians and investigators on the relative value of reference tests vis a vis reactive screening test results and to utilize such reference facilities that are available for the purpose.

Raise Laboratory Standards

By virtue of the Director's role in maintaining a high order of laboratory services, within each State he sets similar high standards for other laboratories so engaged.

In addition to the State Laboratory there are within the borders of every State, a large number of private and institutional laboratories engaged in performance of tests for syphilis. In most States, the Public Health Laboratory has statutory obligations to equate their performance in this field with the high standards set by the official or agency laboratory. I know of no other area in the laboratory domain where such authority and respect are given to the State Laboratory as in the field of syphilis testing. This has been attained over a long period of years and acquired in large part through the leadership of the State Laboratory Director. His zeal in furnishing the best possible service attainable to assist all other laboratories in acquiring the same degree of precision has been the mark of his success. I know of no States where this has not been true.

Participate in Methodology Research

Thus the State Laboratory Director has assumed the full responsibility of furnishing the laboratory services required to aid in diagnosis and case finding within the limits of test accuracy. He must master and adopt new developments in the evolutionary processes that must go on toward the acquisition of even more advanced scientific application of serological testing. New and better methods are bound to be developed and the Director must be alert to participate in their evaluation and application.

So, it seems that the day is a long one for the active and alert State Laboratory Director in his responsibility to supply the best laboratory services available today. But—this is not the

end of the line,—he cannot sit back and admire his handiwork—there is still more to do—and for those who speak of the "eradication of syphilis" the Laboratory Director must still play a major role.

Epidemiological Assistance

Wisely, Venereal Disease Control is built around State functions with federal assistance. Local units can make important contributions, but the State, by virtue of its legal obligations and authority, is best suited for over-all management. The State Laboratory is not a walled-off compartment—receiving specimens and issuing reports—albeit this is a major function. It is a part of a team and must go beyond the purveyance of direct service and stopping there. The problem of eradication of syphilis is in case finding by clinical and serological testing, by diagnosis and case reporting and by utilization of modern techniques of epidemiological investigation. Syphilis, like everything else, is where you find it. But it frequently exists where it is most difficult to find and where every avenue that is open must be exploited to track it down. The recognition that test reactors are always suspect and must be held as such until diagnostic disposition is made, is the keystone of modern epidemiology. The reporting of reactors is no problem for the State Laboratories; it is a routine procedure. This is not the case in the private or institutional laboratories of many States. It is the one weak link in the chain of epidemiological investigation. Much shoe leather is worn out by field investigators trailing the ramifications of a single case of syphilis often because reactive tests on related individuals, performed in a nonreporting laboratory, have not been received. I have always admired the dedicated effort such field investigators exhibit under difficult circumstances.

The State Laboratory Director, as a member of the epidemiological team, must exert his efforts by persuasion, by example, by education and all the other elements that go into good statesmanship in health. Failing by these methods—and if his patience wanes—the State Laboratory Director can exert his legal authority to obtain conformance to the rules, regulations and statutes existing in his State to compel reactor reporting. If reactor reporting were universal, many of our epidemiological problems would be solved; real control eventuating in eradication would be attained.

This is a major role of a Public Health Laboratory Director in today's world of syphilis; he cannot shirk his responsibility as a member of the team; he cannot isolate himself in the laboratory or insulate himself from the fulfillment of his obligation. On the other hand, the epidemiological services must maintain regular liaison with the Laboratory Director in order to attain the most effective use of facilities for testing. The effort in behalf of successful control must be a joint operation.

Summary

In summary, the State Laboratory Director's role in the control and eventual eradication of syphilis is:

1. The *sine qua non* to furnish the best laboratory support within the range of competence and facilities attainable.
2. To stimulate and participate in all efforts of methodology research aimed at higher levels of specificity and sensitivity of testing.
3. To raise standards of performance of all other laboratories by evaluation through quality control, visitation, training and establishment of close liaison with all laboratories in his State.
4. To stimulate, encourage, persuade and finally compel reporting of all test reactors.
5. To actively participate on the epidemiological team in pursuit of the laudable objective: The Eradication of Syphilis.

Role of the Public Health Nurse in Syphilis Control

MARGARET G. ARNSTEIN

ABSTRACT

The term "public health nurse" is defined as the nurse working in the health department and in the schools. Factors which determine her role in syphilis control are as follows: the general attack rates; the specific attack rates by age, sex, socio-economic group and geographic location; factors relating to the organization of health services in the country, state, city or village; the training and availability of various types of personnel; and society's attitude toward the disease. These factors must be considered all together for they are tightly interrelated.

If the attack rate of a disease is high and a specific treatment measure is known and the supply of highly trained health workers is low, one may develop a special corps of workers to deal with this one problem. If the incidence of the disease is low and the population scattered, it is uneconomical and impractical to have a corps of workers dealing with only one disease.

The role of the public health nurse differs widely in different states in the United States and even in rural and urban areas of the same state. School nurses have uncovered many cases of syphilis, sometimes by recognizing symptoms, other times by following up referred contacts. In some venereal disease clinics the nurse makes sure the patient understands the physician's instructions and has the means of carrying them out.

SOMMAIRE

Le terme d'"infirmière du service d'hygiène publique" se définit comme l'infirmière qui travaille au service d'hygiène et dans les écoles. Les facteurs qui déterminent son rôle dans la lutte contre la syphilis sont les suivants: les chiffres d'ensemble de contamination; les chiffres détaillés de contamination par âge, par sexe, par groupes socio-économiques et par lieux géographiques; les facteurs relatifs à l'organisation des services d'hygiène du pays, de l'Etat, de la ville ou du village; la formation et le volume du personnel de genres divers; et l'attitude de la société vis-à-vis de la maladie. Ces facteurs doivent être considérés comme un tout car ils sont étroitement liés entre eux.

Si le taux de contamination est élevé pour une maladie dont on connaît le moyen de traitement spécifique, et si l'on ne dispose que d'un petit nombre d'hygiénistes professionnels, on peut former un corps spécial d'employés pour s'occuper de ce problème particulier.

Si les cas de maladie sont peu nombreux et répartis dans une population elairsemée, il n'est ni économique ni pratique d'avoir un corps d'employés ne s'occupant que de cette maladie.

Le rôle de l'infirmière du service d'hygiène publique varie énormément d'un Etat à l'autre des Etats-Unis et même entre régions urbaines et rurales d'un même Etat.

Les infirmières scolaires ont découvert bien des cas de syphilis, parfois en reconnaissant les symptômes, d'autres fois en suivant les contacts qui leur avaient été désignés.

Dans certaines cliniques anti-vénériennes, l'infirmière s'assure que les malades ont compris les instructions du médecin et ont les moyens de les suivre.

RESUMEN

Las palabras "enfermera de salud pública" significan las enfermeras que trabaja en el departamento de salud y en las escuelas. Los factores que definen su papel en la represión de la sífilis son los siguientes: los tipos generales de ataque; los tipos específicos de ataque por edad, sexo, grupo socio-economico, y localidad geográfica; los factores relacionados á la organización de los servicios de salud en el país, el estado, la ciudad y el pueblo; el grado de instrueción y la disponibilidad de varias clases de empleados; la actitud de la comunidad para con la enfermedad. Estos factores tienen que ser considerados en conjunto porque son estrechamente relacionados entre sí.

Si el tipo de ataque de la enfermedad esté alto, y se tenga conocimiento de un método curativo especifico. y haya pocas personas suficientemente adiestradas para llevar el programa a cabo, entonces sería aconsejable reunir y enseñar un cuerpo especial de operarios para resolver este problema. Pero si la incidencia de la enfermedad esté baja y el pueblo esté esparcido, resultaría demasiado costoso emplear un cuerpo de operarios para el tratamiento de una sola enfermedad.

El papel de la enfermera de salud pública varía de un estado a otro en los Estados Unidos y hasta en los distritos rurales y urbanos de un solo estado.

Las enfermeras de las escuelas han descubierto muchos casos de la sífilis, a veces reconociendo los síntomas, a veces persiguiendo contactos referidos.

En algunas clínicas de las enfermedades venéreas se cerciona la enfermera que el paciente entiende las instrucciones del médico y que tiene los medios para llevarlas a cabo.

INTERNATIONAL CONFERENCES, such as this one, which focus on health problems are in themselves evidence that scientific findings have universal application and thus we can learn from each other information which we can take home and apply. It is also well known, though sometimes not sufficient thought is given to the influence that differing conditions may have on the seemingly firmly established "fact" found in one country or part of the world. Climate apparently has some influence on the characteristics of certain diseases; race is a modifying factor in some instances; social customs will influence others. Thus, just to cite one example, the severe clinical manifestations of rheumatic fever are seen less often in the Southern part of this country than in the North though the infection rate is similar in North and South. This example could be multiplied many times over.

When attending international meetings or visiting each other's countries, we are all careful therefore to define our terms and draw limits around our statements.

If this be true about our scientific observations, how much more it applies to the methods of application of scientific discoveries in different countries, or even different parts of the same country. All nations may use the same medication to prevent or treat a given disease, but who gives it, where it is given, and who pays for it will differ widely.

Factors Influencing the Role of the Health Worker

For these reasons it seems worthwhile to review again the factors which may influence the program of the health department and the role of the various health workers in syphilis control. The role of the public health nurse in syphilis control must be viewed against this background. for she does not work alone. For the purpose of this meeting, I will define public health nurse as the nurse working in the health department and in the schools.

What then are some of the factors which will determine her part in the program? There are first the factors relating to the disease itself, the size of the total problem; that is, the general attack rates. The specific attack rates by age, sex, socio-economic group and geographic location will under certain conditions be a major determinant of the nurse's role.

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There are factors relating to the organization of health services in the country, state, city or village, such as the training and availability of various types of personnel in the country as a whole and in various regions in relation to the distribution of the particular disease in question.

Lastly, there is society's attitude toward the disease, and this is a major influence in program planning and method of program execution, not just in relation to the venereal diseases but in all health programs. If the person with leprosy is outcast by society, we manage the care of his illness and the whole control program differently than the illness itself might require. In this country not so very long ago there was a stigma attached to tuberculosis. People often tried to keep it a secret. Families didn't talk in public about the member who was in a tuberculosis sanatorium but whispered the news only to close friends. People avoided giving the disease its proper name. These attitudes were probably engendered by the high fatality rates, the long hospitalization and poor prognosis, all of which was evidence of our helplessness in the face of this disease. Whatever the cause of the attitudes, while they prevailed the health education had a very different tone and some different objectives than it has today. The health worker, whether physician, nurse, social worker or other, had to approach the patient and family very differently than she did if she was discussing pneumonia. We could all think of other diseases which have been labelled "disgraceful" for one reason or another, mental disease being an outstanding example in some countries. In each instance, modifications have been necessary in our approach to the control and treatment of these diseases.

As we all know, the attitudes of society are of paramount importance in the designing of syphilis control measures and in deciding what the role of each health worker shall be. Attitudes towards women, towards marriage, towards extramarital relations and towards homosexual relations will all influence the whole program and the type of worker who can be most effective.

When we consider what influence the major factors already mentioned—the disease, the organization of the health services and the attitudes of society—may have on the role of any given health worker, we find that we must consider them all together for they are tightly interrelated.

If the attack rate of a disease is very high and a specific preventative or treatment measure

is known and the supply of highly trained health workers is low, one may develop a special corps of workers to deal with this one problem. Smallpox vaccinators have been developed in many countries for these reasons. In a brief period they can be taught what they need to know about this one narrow subject, so that they can teach the importance of vaccination and can vaccinate safely. In these countries there are such large numbers needing vaccination, they are concentrated in sizable centers and smallpox is such a hazard that it may well be worthwhile to have a single purpose health worker of this type who is not prepared to cope with any other health matter. Such specialized groups may be a temporary expedient until more family health workers—public health nurses in most countries—can be trained or until the disease incidence has been reduced.

If the incidence of the disease is low and the population scattered as in rural areas in this country, it is uneconomical and quite impractical to have a corps of workers who deal with only one disease. Their travel time alone would reduce the volume of work that one person could do and this plus payment for travel would make the plan undesirable if one considered it merely from a financial point of view. The reluctance of rural people to accept newcomers is another reason to use the family health worker.

These illustrations show how the general attack rate and geographic distribution may influence the role of the health workers. How then do specific attack rates by age and socioeconomic groups bear on this subject? In syphilis control work we see particularly good examples. If the disease is found primarily among prostitutes and vagrants and in the groups which frequent the waterfront bars, one may need male workers who may or may not be nurses.

If the disease is most prevalent—as is true in this country today—among children 15–19 in some ethnic groups and young adults in the age groups 20 to 24, we are dealing then with a family problem and a school problem and the health worker who deals with family and school health problems—the public health nurse—may be the most appropriate person to do syphilis control work with this group.

Before proceeding to an examination of what the role of the public health nurse may be in the venereal disease program, I would like to review briefly her responsibilities in the total public health program in this country and in many other countries where public health nursing exists. I say "she" because in this country there are very few men in this field of work though we would like to have more. In many countries I realize men may predominate in this group of health workers.

The public health nurse is the family health worker. She visits more people in their homes than any other health worker. She is expected to detect all types of physical and emotional health problems which can be discovered through interview and observation. She assists families in finding the appropriate assistance, medical, social, financial, etc. She interprets medical orders and instructions and helps them work out the application of these instructions in their particular situation. More and more health departments which are giving nursing care of the sick and families are looking to the public health nurse in times of crisis as well as for health counseling.

Present Responsibilities

In describing the role of the public health nurse in the venereal disease program, I will limit myself to her role in the United States of America, and even that will not be easy as it differs widely in our different states and even in different parts of the same state, especially between urban and rural areas.

The public health nurse, as I have already pointed out, is expected to be alert to suspicious symptoms of any disease including syphilis. Thus, if the nurse in school finds that a high school girl is pregnant she will not only help her get medical care but will also give her and her family the emotional support they need in this difficult situation. Her knowledge of the girl's behavior in school will help the nurse in directing the questions about sex contacts. School nurses have uncovered many cases of syphilis, sometimes by recognizing symptoms suspicious of the disease and securing diagnosis, other times by following up contacts referred to her from a venereal disease clinic (*1*).

The rise in venereal disease rates in our school children has caused concern and a number of studies are under way to find out underlying causes and ways to prevent them. Some recent studies by the American Social Health Association have shown that epidemics involving teenagers include many rather normal boys and a few, or even one, disturbed girls. School nurses along with teachers can help spot these girls and refer them to psychiatric help, thus hopefully indirectly preventing many cases of venereal disease. This is actually being done in

at least one city school system in this country (*2*).

In the nurse's visits to families in their homes to give child health supervision or for any other purpose she may also do case finding.

"A nurse was visiting a school child who had primary tuberculosis. While making the visit, she noticed that the mother of the child was pregnant. During the recital of the family history the woman stated, 'I've always had bad blood.' This, of course, could mean little or much, but it did alert the nurse to the urgency of immediate medical care" (*3*). The nurse explained why it was important for the baby that she find out what caused her bad blood. The woman was found to have syphilis and was given treatment. "Following delivery, the infant was admitted to nursing service for follow-up care" (*3*).

When the public health nurse's purpose in visiting a family is syphilis control she may find other health problems, and in like manner bring them to care. Recently a contact of a person with secondary syphilis was named in a family in which the nurse was visiting the expectant mother. "The visit to inquire about the contact was well accepted because of the past services she had given the family. . . . As a result of this one visit made in the interest of venereal disease control, the nurse found and brought to nursing service the syphilis contact, three infants, one pre-school child, and one pregnant school girl" (*3*).

In addition to working in homes and schools, the public health nurse works in the various health department clinics. She interviews patients to identify health problems in order to reduce the amount of time the physician must spend doing this. She also makes sure the patient understands the physician's instructions and has the means of carrying them out. She performs these same functions in some venereal disease clinics; in others the specialized worker or the investigator may do all interviewing to obtain contacts; or the nurse may interview the young school age person and pregnant women because of the numerous other health problems, both physical and emotional, these groups are likely to have.

Working periodically in a venereal disease clinic is an excellent way to keep nurses alert to the problem of venereal disease and this has proved to sharpen their case finding abilities. Some health departments rotate their nurses through the venereal disease clinics at regular intervals.

Future Role of Public Health Nurse

So far I have described what now exists. What of the future? Others at this meeting have discussed the future from various standpoints. You have already discussed or will discuss possible approaches to the still unsolved problems of syphilis control. Any or all of these may influence some or all of the health workers.

But right now there is a serious gap in our program which could be filled by the public health nurse especially well in rural and semi-rural areas. The gap I refer to is the lack of contact follow-up of private physicians' cases. We know that private physicians in this country are treating a much higher percentage of cases than before the days of penicillin. According to the most recent figures they reported almost half the cases (44%) in 1961. They often do not have time to find contacts and bring them to treatment and the public health nurse can be enormously helpful with this group of patients. We need to experiment with various ways of giving this service. Will the public health nurse come to the physician's office? Will she interview the patient in her own office or in the patient's home? How will the physician's interest be obtained and once obtained, be maintained? Will this program be more successful in the counties where the health department nurses are giving care to the sick at home and thus have close frequent working relations with the private physicians?

We need to explore all these approaches and more, by actual field trials. We need to find ways to reach the physicians—through their medical societies, their literature—to lay the foundation for this cooperative work in venereal disease control.

In one instance reported in the literature, the private physician asked the public health nurse to investigate two cases of venereal disease, one primary and one secondary. The final results were 29 previously unknown cases brought to treatment (*4*).

What then may the public health nurse now or in the future contribute to this program? As health workers, today at this meeting we are concentrating on one group of diseases, the treponematoses, but in our jobs at home we know that the health of the individual, the family and the community must be looked at more broadly. We know that emotional as well as physical health must be considered.

The public health nurse who understands the epidemiology of syphilis can be an expert in interviewing newly diagnosed cases, finding

contacts and bringing them to treatment. In addition, because of her training, she can be helpful particularly with young people in preventing promiscuity from becoming a way of life. This may involve asking the social worker for help or enlisting the aid of the school counselor or psychologist or perhaps referring the youth to a mental health clinic if that seems necessary.

The nurse's training and experience has made her alert to other health problems and she is instrumental in bringing these under care, too.

In summary then, if the disease is appearing as a family health problem, not primarily as a problem of homeless men and women, the public health nurse can contribute much. The relative role she will play will depend also on the size of the total disease problem in relation to other health problems and on the numbers of public health nurses available, and last but not least on the attitudes of society toward this disease.

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Role of the Social Worker in Syphilis Control

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ABSTRACT

The Swedish anti-V.D. law is now under study by a special royal committee with the aim of making it modern.

Since July 1944 grants from the national budget have been made for the employment of social workers in all the big V.D. services in the country. The social worker had three principal functions: Assisting the doctor, especially in contact tracing; assisting the patient in difficulties resulting from V.D.; assisting society in resettling the patient and in prevention of new cases. Prevention involves not only the disease itself but recurrence of circumstances which were the background of the actual V.D. The social worker works with the patient, the family, the children's welfare board, the family consultation bureau, the different social services, the housing bureau, etc.

The National Board of Health found that it was of great importance that the social workers have postgraduate training. A continuous system of refresher days was organized, which make it possible to inform the social workers of developments in medicine, legislation, and education.

In hospitals where there is a well developed psychiatric service the social worker has been able to penetrate the background and structure of the patient.

Epidemiology must be studied from all angles in order to eradicate venereal diseases, and specialists in all the different fields of human ecology are needed.

SOMMAIRE

Un comité spécial sous l'égide du gouvernement royal est maintenant en train d'étudier la loi suédoise regardant les maladies vénériennes en vue de la rendre plus moderne.

Depuis juillet 1944, des subventions venant du budget national permettent d'employer des assistantes sociales dans tous les centres importants du pays où sont traitées les maladies vénériennes.

L'assistante sociale a trois fonctions principales: aider le docteur, surtout à retracer les contacts; aider le malade dans les difficultés qui lui viennent de sa maladie vénérienne; aider la société à faire une place au malade et à empêcher de nouveaux cas. La prévention s'applique non seulement à la maladie elle-même, mais consiste aussi à essayer d'empêcher le retour des circonstances qui l'ont favorisée.

L'assistante sociale travaille avec le malade, la famille, le service de la protection de l'enfance, les différents services sociaux, le service du logement, etc.

La Commission Nationale de la Santé est d'avis qu'il est très important que les assistantes sociales continuent à se tenir au courant une fois leurs études terminées. On a organisé un système continuel de journées de perfectionnement qui permet de tenir les assistantes sociales au courant des innovations dans le domaine de la médecine, des questions légales, éducatives, etc.

Dans les hôpitaux qui ont un service psychiatrique bien développé l'assistante sociale peut étudier plus profondément les antécédents et la structure psychologique du malade.

L'épidémiologie doit être considérée sous tous les angles de façon à faire disparaître les maladies vénériennes, et on a besoin de spécialistes dans les différents domaines de l'écologie humaine.

RESUMEN

Actualmente se está revisando la legislación sueca en materia de enfermedades venéreas con el fin de modernizarla.

Desde 1944 se vienen concediendo asignaciones del presupuesto nacional para emplear trabajadores sociales en todos los servicios de enfermedades venéreas del país.

Tres son las funciones principales del trabajador social en este campo: el asistir al médico, especialmente en cuanto a mantenerse en relación con los contactos; el ayudar a los pacientes en las dificultades que confronten como consecuencia de enfermedades venéreas; el asistir a la colectividad a establecer de nuevo a los pacientes y a prevenir el brote de nuevos casos. Las actividades preventivas no sólo incluyen a la enfermedad en sí, sino que también buscan evitar la repetición de las mismas circunstancias en que la enfermedad venérea se desarrolló.

El trabajador social trabaja conjuntamente con el paciente, la familia, la junta de bienestar infantil, la oficina familiar consultiva, los diversos servicios sociales, la junta de la vivienda, etc.

La Junta Nacional de Salud considera muy importante que los trabajadores socialcs realicen estudios postgraduados. Se ha establecido, por lo tanto, un sistema continuo de cursillos mediante los cuales el trabajador social puede mantenerse al día en cuanto a los últimos adelantos en medicina, legislación, educación, etc.

En aquellos hospitales en que hay un servicio psiquiátrico bien organizado, los trabajadores sociales han podido conocer a fondo los antecedentes y características del paciente.

Para lograr la erradicación de las enfermedades venéreas es preciso estudiar la epidemiología desde todos los ángulos, necesitándose especialistas en todos los campos de la ecología humana.

WHEN during the beginning of this century the laws and regulations of prostitution had been abolished the content of the new anti-V.D. legislation was turning only to some kind of control. The old term "registered prostitute" was abolished but the new laws were focused on the V.D. control of women. Still, the male as source or spreading factor was estimated not to be of the same importance.

The new laws were primarily constructed with the aim of preventing the spread of V.D. Special consideration was given to the organisation of services to treat the sick person and thereby prevent dissemination of the disease. There was also built up a system to trace the source of infection and thereby to find the way of the microorganisms.

In some countries the legislation put special emphasis on compulsion of treatment and in some instances, also to more or less compulsory examination. The old system of registration under the authority of the police had undergone only a very slight change.

Then, new ideas in the control of infectious diseases came to sight. Epidemiology was regarded to be not only the action of taking care of a sick person in order to prevent spreading of the disease to others but the infection was studied from all angles to learn not only what happened but also why it happened. Each time an outbreak of an epidemic was studied, an evaluation was made of what could have been done to prevent just that situation, and of what could be done to prevent a recurrence.

Swedish Anti-V.D. Laws

When the Swedish law against V.D. was passed by Parliament, June 20, 1918, it was named: "Activities Against Dissemination of the Venereal Diseases." The main principles embodied in the law were availability of examination and treatment facilities free of charge all over the country, necessary drugs and hospital care also free of charge. On the other hand the diseased person should follow the treatment prescribed by the physician and continue the observation until he is declared cured. If the patient failed in this respect, there was some legal possibilities for action with forced examination and referral to hospital care. The patient had also to restrain from sexual contact. Exposure of others to the risk of V.D. transmission could be punished with up to two years of forced labour. This law is still in action, with very few amendments.

If you now read the paragraphs of the law, you perhaps would have the feeling that the law mainly is constructed to protect the community. It has very little reference to the sick person in its wording. The Swedish anti-V.D. law is now under study by a special royal committee with the aim of making it modern, and to serve both the society and the individual.

Society has since hundreds of years acted against V.D. mainly with the concept of fear—how to avoid spreading. This concept is—no doubt about that—of highest importance but it is not all.

The above-mentioned Swedish law contains the words: Activities against dissemination of the V.D. That must also mean prevention of every single case, if possible.

The actual case of V.D. is now being looked upon from all possible aspects. More and more interest is devoted to the very complicated question why A and B are sick instead of the earlier wish to find out only where the patient got infected. The reason behind this investigation was surely the desire of putting more emphasis on prevention. Could we get a clear picture of what was the reason for the infection, we could find some possibilities for preventive action.

Grants for V.D. Social Workers

The idea that a social worker is a natural partner of the medical team has developed rather slowly, but the interest in social medicine has increased. It was therefore quite natural, that the Swedish National Board of Health, in 1943 faced with a continuously increasing number of V.D. cases in Sweden, proposed to the Government that social workers should be attached to all the big V.D. services in the country. The proposal was accepted by Parliament and from July 1, 1944 grants from the national budget have been given for the employment of these social workers.

The National Board of Health was by the same Parliament instructed to employ a special consultant for V.D. questions. He had to find suitable persons and give detailed instructions to the V.D. social workers.

From the very beginning emphasis was laid on integration of the social worker in the medical team. It had to be made clear to the doctors and to the nurses that the social worker was there to act according to her special training and qualifications together with the others in the fight against V.D. It should be quite natural

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that the V.D. cases should consult the physicians and the social workers.

New ideas have always to pass through certain barriers of resistance. You all have heard phrases like these: "It has gone all right for many years," "this just complicates matters," and so on. And, surely, in some cases the social worker firstly was looked upon as some kind of criticism towards earlier activities.

Functions of Social Worker

In the instruction just mentioned, the social worker was principally given three functions:

1. To assist the doctor in his medical work, especially in contact tracing.
2. To assist the patient in the difficulties he or she may encounter as consequence of the actual V.D.
3. To assist society in the resettling of the patient and in the prevention of new cases.

Very soon it was quite clear that the social worker had understood the instructions in item 2—assistance to the patient—in the way it was expected from the beginning. The social worker has through her training special possibilities to get the right personal contact with the client. She is mostly not so pressed by time and her approach is different. Very soon, she got known in the V.D. clinic as the person really interested in the patient as a human being, not just as a case. To be able to assist, she must know the facts.

With these facts in her mind, the social worker together with the doctor, starts on the way to find out why the patient got infected. The road opens for an activity according to modern medical principles—not to punish or threaten but to cure and to try to prevent recurrence. That prevention means not only to prevent the disease itself but also to try to prevent recurrence of those circumstances which were the background of the actual V.D.

In her work the social worker has to act together with the patient, the family and the children's welfare board, the family consultation bureau, the different social services, the housing bureau, etc. During the period of observation, when the patient turns up just for a check, the social worker has ample opportunities to discuss with the client and to give advice for the future. Thereby, the client also often feels there is another reason to come back. And this is of special value as the patient often does not understand why he or she is forced to come back for a great number of examinations, very often negative.

The social work at a V.D. clinic is sometimes a rather distressing job. Everything does not work according to high principles and rules. It has also a risk of being monotonous, and to obtain good results, you need to have well trained persons with real interest in their jobs.

Postgraduate Training

From the beginning the National Board of Health followed the development of these new activities with great interest. It was soon found that it was of great importance that these social workers had the opportunity for postgraduate training. At these meetings it was also possible to create and maintain the necessary group feeling.

Every second year the Board therefore organizes special days for these social workers. On these occasions, lasting three days, all the social workers from the V.D. clinics all over Sweden, come together at different centres in Sweden. At these meetings, discussions and lectures on actual V.D. problems are held, and at the same time the social workers are brought together with representatives of the medical profession and nurses, social workers from other fields, teachers, representatives from the Social Board and the Children's Welfare Board, the police, etc., just as we are here. Through this continuous system of refresher-days it is possible to inform the V.D. social workers of the developments in medicine, legislation, education, and so on. And at the same time the social workers have ample opportunities to give information about their problems, results and difficulties.

Results Obtained by Social Workers

If we now look upon the experiences gained from the 18 years that have elapsed since the first V.D. social worker started her work, I feel they mostly are very positive.

I think it is quite clear that all doctors actively interested in V.D. work now find it quite impossible to run a modern V.D. service without a social worker. The doctor needs the social worker to assist in contact tracing—we have no possibilities of having special investigators. And the patient—sometimes after a period of resistance—mostly is very satisfied in having contact with a person in the V.D. service interested not only in the logbook of the microorganism but also in himself.

The social worker has in hospitals, where there is a well developed psychiatric service, been able really to penetrate the whole back-

ground and structure of the patient in cooperation with the psychiatric team. Thereby she has been given better possibilities in resettling and assisting the patient.

In other cases, the social worker has so won the confidence of the patient, that she without difficulties has been able to come in close contact with the whole group, the gang.

It is all the time emphasized by the social workers, that the experience gained through these years of service, underlines the fact that the positive approach from the side of the V.D. service is of great importance. Now it is quite clear the picture is not only sunny. There are cases where the social worker alone is not able to do much for the patient. The V.D. service surely needs the cooperation of the home, if possible with both parents. In many cases the social worker finds it necessary to request action from the Social Board or the Children's Welfare Board, and, we must confess, all cases are not successful.

Varied Specialists Required

On the other hand, we must realize that the problems of V.D., and especially syphilis, are not settled by appointing some social workers to the V.D. clinics, no matter how clever they may be. I do not mean that, but I feel that in the very difficult situation we have before us with an increasing number of V.D. cases in many parts of the world, everything possible has to be done.

All other problems here discussed have to be tackled in their way. But before we act we must know more about the real behavior of the youngsters of today. And then we will have a better basis for our action.

In the V.D. problem as a whole, many factors are acting. We have to study the epidemiology from all angles in order to be able to prevent also these diseases to appear in the individual and thereby in our society. In that action all specialists in the different fields of human ecology have to play their part.

Role of the Interviewer in Syphilis Control

ROBERT R. SWANK

ABSTRACT

The ideal control program for syphilis eradication will include all procedures aimed at the reporting of every infectious syphilis case known to private and public medicine. The contact and suspect interview must be performed so effectively that the information obtained will result in finding and bringing to examination all contacts within the period of infectivity of the patient being interviewed. The interviewer thus becomes the key figure in determining the success or failure of syphilis control programs.

Interviewing is simple in theory but operationally complex, as a result of the negative attitude of the patient toward the positive approach of the interviewer. Some of the barriers set up by patients are as follows: He may resent his diagnosis with its asocial overtones. He is reticent about discussing his behavior with a stranger, because of its legal implications or its blackmail potential. He thinks loyalty to others is maintained by silence or lying. He fears the possibility of retaliation. He can envision marital discord and a loss of status.

The interviewer sincerely selling confidentiality and promoting the patient's human dignity seems to possess the best chance for success. An interviewer must be trained in the use of effective interviewing methods. It is important to supplement formal training with in-service training programs.

The original interview is most important, for it is in this initial talk that the pattern of infectious productivity is established.

SOMMAIRE

Le programme idéal de lutte préventive visant à faire complètement disparaître la syphilis doit inclure toutes les méthodes qui ont pour but de signaler chaque cas d'infection syphilitique dont les médecins privés et les services médicaux publics ont connaissance. L'entrevue ayant pour objet de déterminer l'agent de contact et les suspects doit être si bien réussie que les renseignements obtenus permettront de trouver et de faire examiner toutes les personnes avec lesquelles le malade s'est trouvé en contact pendant sa période de contagion. L'interviewer devient par conséquent le personnage clef dont dépend le succès ou l'échec des programmes de lutte préventive contre la syphilis.

L'art d'interviewer est simple en théorie mais complexe en pratique du fait de l'attitude négative du malade qui s'oppose à l'attitude positive de l'interviewer. Voici certains des obstacles derrière lesquels le malade se dérobe: il éprouve du ressentiment du diagnostic et de ses implications asociales; il est réticent quand il s'agit de discuter de sa conduite avec quelqu'un qu'il ne connaît pas, à cause des implications légales ou de la possibilité de se trouver en butte au chantage; il pense que la loyauté envers autrui consiste à garder le silence ou à mentir; il craint d'être soumis à des représailles; il est possible qu'il prévoie des discordes maritales et le mépris des gens qu'il connaît.

L'interviewer qui réussit à persuader le malade du caractère confidentiel de l'entrevue et qui donne l'impression d'avoir à coeur la dignité humaine du malade est celui qui semble avoir les meilleures chances de succès. Un interviewer doit être au courant des méthodes les plus efficaces de son art et doit être capable de les appliquer. Il est important de supplémenter un entraînement théorique par des programmes d'entraînement pratique.

La première interview est d'une importance capitale car c'est au cours de cet entretien initial qu'on détermine la façon dont la productivité infectueuse se comporte.

RESUMEN

El programa ideal para la represión y la extirpación de la sífilis debe comprender todos los procedimientos necesarios para revelar cada caso de sífilis infectivo que llegue al conocimiento de los médicos, sean privados o públicos. La entrevista para averiguar los contactos conocidos y conjeturados tiene que ser llevado a cabo tan eficazmente que la información que se obtiene acabará en el descubrimiento y examinación de todos los contactos habidos en el período de infectividad de la persona interrogada. Por eso el reportero será la persona mas importante para determinar el buen éxito o el fracaso del programa para la represión de la sífilis.

En teoría el manejo de la entrevista es simple, pero de hecho resulta complicado por causa de la actitud negativa del paciente frente a la positiva del reportero. Algunos obstáculos presentados por los pacientes son los siguientes: El podrá rescutir la diagnosis en vista de la inferencia anti-social. Puede estar reticente de tratar su conducta con un desconocido en vista de las inferencias legales o la posibilidad de chantage. Cree que muestra lealtad hacia otras personas si calla o miente. Teme la posibilidad de venganza. Imagina discordia marital y pérdida de posición social.

La mejor oportunidad para buen éxito de la entrevista se halla cuando el reportero promete con sinceridad que la información quedará confidencial, y cuando estimula la dignidad humana del paciente. El re-

portero tiene que ser enseñado en los métodos más efectivos. Además de la enseñanza formal, es importante establecer programas de instrucción durante el servicio regular.

Es muy importante dirigir bien la primera entrevista porque es aquí donde se establece el molde de productividad infectivo.

A SYPHILIS ERADICATION program requires a frontal attack on the disease. Lacking mass preventative measures this necessitates an all-out epidemiological exploitation of each known infectious or potentially infectious case of syphilis. The ideal control program will include all procedures aimed at the reporting of every infectious syphilis case known to private and public medicine. Excluding congenital syphilis and acquired syphilis in the very young, very few infections are transmitted without some form of intimate sexual assistance from another infectious person. Epidemiology then becomes the most effective arm of a control program in searching for the unknown and unreported cases. The cornerstone upon which an epidemiologic program is built must by necessity be the contact and suspect interview. This must be performed so effectively on each infectious case that the information obtained through this process will result in finding and bringing to examination all contacts within the period of infectivity of the patient being interviewed. Through added interviewing techniques, infectious persons, not contacts, but members of a related socio-sexual group, are uncovered. The interviewer then becomes the key figure in determining the success or failure of syphilis control programs.

Interviewing, like most control procedures, is simple in theory, but operationally complex. Its complexities result from the negative attitude of the patient toward the positive approach of the interviewer. Why does the patient tend to negate the positive informational query of the interviewer? Obviously, in the time allotted to me, I cannot present a course in interviewing, but certain thought-provoking allusions can be made.

Resistance of Patients

As interviewers we must accept the fact that self-imposed barriers set up by patients to our informational inquiry are justifiable. Some of these justifications are as follows:

1. He may shamefully resent his diagnosis with its moral and asocial overtones.
2. He is reticent to discuss his behavior with a stranger, particularly if it is deviate in nature, because of its legal implications or even because of its blackmail potential.
3. Sexual intimacy in many instances breeds a degree of loyalty to others—he mistakenly thinks loyalty to others is maintained by silence or lying.
4. He fears the possibility of retaliation or bodily harm.
5. He can envision family or marital discord and a general loss of status.
6. He lacks knowledge concerning the confidential nature of our programs or distrusts its personnel. And there are many other reasons that could be cited.

The degree of interviewing success rests with how well the interviewer and the interviewing technique partially or completely removes barriers and creates a controlled positive thinking. It is true that the technique is important, but the interviewer sincerely selling confidentiality and promoting the patient's human dignity seems to possess the best chance for success. No successful interviewer can ever cease to study the resistance of patients to the interview and to consider each patient a separate and different challenge.

Well-Trained Interviewers

This leads to my next point: If the reasons for a patient's resistance to an interview are complicated and to combat this our technique must be complex, it follows that our interviewers must be well-trained workers. To perform a successful interview, a worker must have a thorough understanding of the medical and epidemiological facts relating to syphilis. He must be trained in the use of effective interviewing methods. These two requirements can best be met through formal training programs in interviewing schools. Their curricula are primarily slanted toward the beginner in Venereal Disease control, but here too, experienced personnel can receive refresher information and practice. However, as in the many other proficiencies we possess, a very good interviewer is to a great extent self-made or the product of on-the-job experience. It is, therefore, important to supplement formal training with in-service training programs. As in many other activities in life, "Experience is the best

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teacher" for interviewers. In progressive self-development the interviewer gains the abilities to more easily communicate with and consequently be more readily accepted by Venereal Disease patients with whom he talks. He develops tact. He becomes increasingly a better salesman for his program. He maintains a tenacity that, if successful, transforms the barriers of the patient into cooperative and correct responses. He thinks in terms of multiple contacts and utilizes all of his techniques and experience to obtain additional contacts. He closes an interview as a helpful friend of the patient, promotes self-interviewing on the part of the patient, and arranges for reinterviewing.

An evaluation in many areas of the country reveals that poor interviewers tend to remain poor. Good interviewers tend to improve their results. There may be much to be said for the fact that, "It is not so much as to when, where or how we interview, but rather, *who* interviews?" Maybe not all V.D. workers can become acceptable interviewers. If this is true, as certain groups suggest, it may be necessary to take this fact into consideration in regard to program staffing and work assignments. If by reviewing the results of interviewing we learn that an area has relatively few steadily successful interviewers, it might be important for the sake of program improvement to establish a "mobile task force" or an "interviewing flying squadron" made up of the most reliable interviewers. We should at least think in terms of a system which would bring together a larger percentage of good interviewers and patients.

Evaluation Studies

Importance of First Interview

Up until now, I have been talking about how to produce epidemiologic results from interviewing. Now let us see if there is anything to learn from a look at these results. We are frequently asked, which contact is the most important, the first, second, or last one named by patient? In relation to this question, I would like to discuss two studies. In Hampton Roads Medical Center, Norfolk, Virginia, in 1949, a study was made on the epidemiologic value of contacts on the basis of the order in which the names of the contacts came from the patient's mouth (*1*). In the late 1961 the state of Georgia made a similar study (*2*). In the Hampton Roads study the contacts of 151 primary and secondary syphilis cases were included; in Georgia the contacts of 179 primary or secondary cases. The contact indices for each of the groups were: Hampton Roads 6 plus, and for Georgia 5 plus. If one considers the contacts brought to treatment as previously untreated cases of syphilis for both groups, these are the results expressed in percentages: In the Hampton Roads group the first and second contacts accounted for 49% of all contacts brought to treatment; in Georgia for the same contacts, 52.5%. The third contact named produced 10% of total in Hampton Roads; 10.7% in Georgia. The fourth contact in Hampton Roads, 7%, and in Georgia 6.8%. The fifth and subsequent contacts obtained by interview in the Hampton Roads study accounted for the remaining 34%; in Georgia the remaining 30.1%. If, according to these two studies, 50% of your contacts brought to treatment will be the first and second contacts named by the patient, it would appear that the original interview is most important, for it is in this initial talk with the patient that the pattern of infectious productivity is established.

Importance of Reinterviewing

You will remember that in the Hampton Roads study the fifth and later contacts named accounted for 34% of the brought-to-treatment contacts. In Georgia the same contacts produced 30.1% of the total. A great percentage of the fifth and subsequent contacts was obtained on self-interview or reinterview, and to a lesser degree the third and fourth contacts. If over 30% of the contacts brought to treatment for syphilis was the fifth or later name to come from the patient's mouth, then we cannot overemphasize the value of reinterviewing. Other studies have revealed that reinterviewing all or most of your primary and secondary syphilis cases will reduce your epidemiologic failure rates by 33%.

Need for Improved Methods

The Hampton Roads study was the result of a few well qualified interviewers. The Georgia study was statewide and included the efforts of the best and worst interviewers on the staff. Yet, the two studies, although conducted 12 years apart, are comparable in casefinding results. It is assumed that basically the interviewing techniques were the same. This raises my final questions: If the 1961 technique has not improved in the 12 years since 1949, the question is, "Why not?" We should be thinking in terms of studying new and different methods. Although time will not permit me to point out the remarkable improvements that have been statistically recorded concerning our

epidemiologic procedures during the past 15 years, those data indicate the necessity for continuing studies of new and more effective methods and for the sharpening of the tools now in use. These tools must be placed in the hands of better selected and trained personnel. The interviewer will remain the key person in the epidemiology of syphilis. His role may well determine the success or failure of eradication. If the cornerstone, that is, interviewing, is not strengthened *now*, we may witness the crumbling of the syphilis eradication program.

References

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Role of the Investigator in Syphilis Control

WILLIAM H. HAMLIN

ABSTRACT

This discussion will be limited to the investigator and the techniques he utilizes.

Field investigation is the process by which the venereal disease worker locates and brings to examination: Contacts and suspects who have been named in the interview; people who are reported to have reactive syphilis tests but who are not under medical care; and other people who may be suspected of having syphilis. The investigator must preserve the emotional well-being and the social, family and community status of the person being investigated.

He is the liaison between public health and the community.

The rules of syphilis investigation are as follows: Never reveal the name of an informant to a contact. Never tell a contact or suspect that he actually has a disease. Never gossip. Every effort should be made to see the suspected individual personally. Never take medical records into the field.

Speed and flexibility are essential to investigative work. Certain syphilis investigations should receive priority. Contacts to primary and secondary syphilis, teenagers and young adults with high titered reactive serologic tests, and cluster suspects indicated to have lesions are of emergency importance.

The successful investigator should cultivate the following: Community leaders, former patients, managers, waitresses and bartenders, school principals and teachers, police, and, in rural areas, storekeepers and mailmen.

Investigators should be trained in the discreet handling of confidential matters and should be very familiar with their communities.

SOMMAIRE

Cette discussion se limitera à l'enquêteur et aux techniques qu'il utilise. L'enquête sur le terrain-même est le procédé par lequel le préposé aux maladies vénériennes repère et emmène aux fins d'examen: les individus ayant été en contact avec des syphilitiques ou suspectés de l'être eux-mêmes et dont les noms ont été prononcés au cours de l'entretien; les personnes qui, au cours de tests, ont réagi positivement mais ne suivent pas de traitement médical; et d'autres personnes dont on peut croire qu'elles son atteintes de syphilis. L'enquêteur doit respecter l'équilibre émotionnel de celui qui est l'objet de l'enquête, ainsi que sa position sociale, familiale et communautaire.

Il est le lien entre la santé publique et la société.

Les règles de toute enquête sur la syphilis sont les suivantes: Ne jamais révéler le nom d'un informateur à une personne signalée comme ayant été en contact avec la maladie; ne jamais dire à quelqu'un suspecté d'avoir été en contact avec la maladie ou d'en être atteint qu'il a actuellement une maladie; éviter les commérages; tout effort devrait être fait pour rencontrer personnellement l'individu suspecté. Ne jamais mettre de documents médicaux dans le terrain d'enquête.

Rapidité et souplesse sont essentielles pour un travail de recherche. Certaines enquêtes sur la syphilis devraient passer en priorité. Ceux ayant été en contact avec des syphilitiques primaires ou secondaires, adolescents et jeunes adultes dont la réaction, au cours de tests sérologiques, a fait ressortir un titre élevé, et tous les autres suspects signalés comme atteints de lésions sont des cas de première urgence.

Pour réussir, l'enquêteur devra entretenir de bons rapports avec les personnes suivantes: les chefs de collectivités, les anciens malades, les gérants, les serveuses, les patrons de bars, les directeurs et les professeurs d'école, la police et, dans les zones rurales, les commerçants, les postiers et les facteurs.

Les enquêteurs devraient être instruits afin de manier avec discrètion des sujets confidentiels et devraient être admis dans l'intimité des groupes dans lesquels ils ont à évoluer.

RESUMEN

Será limitada esta discusión al investigador y a las técnicas que emplea.

La investigación de campo es el proceso por el cual el investigador de la enfermedad venérea localiza y somete á examen á los contactos y sospechosos que han sido citadas en la entrevista, á personas de las que se han recibido información de tener unas pruebas reactivas de sífilis y que no están bajo del ciudado de un médico, y á otras que se sospechan de tener la sífilis. El investigador debe conservar el bién estar emocional, el estado social, el de la familia y el de la comunidad de la persona investigada.

El sirve como el enlace entre la salud pública y la comunidad.

Las reglas de la investigaeión de la sífilis son las siguientes: Revelar nunca el nombre del informante á la persona con quién se comunica. Nunca decir a la dicha persona ó á quién se sospecha de que actualmente tiene la enfermedad. Nunca entregarse a chismes. Se hará todo esfuerzo para ver personalmente á tal individuo. Nunca llevar notas médicas en su recorrida.

La rapidez y la flexibilidad son importantes para el trabajo del investigador. Ciertas investigaciones de la sífilis deben recibir precedencia. Son casos de impor-

tancia urgente las personas citadas con sífilis primaria ó secundaria, los adolescentes y adultos jovenes con unas pruebas reactivas serológicas altamente positivas y grupos de personas sospechosas manifestando lesión de esta enfermedad.

Para que tenga éxito, el investigador debe cultivar buena relación con los líderes de la comunidad, pacientes anteriores, encargados ó gerentes, camareras y cantineros, maestros y directores de escuelas, la policía y en las partes rurales con los dueños de las tiendas y carteros.

Los investigadores deben prepararse para manejar con cautela asuntos confidenciales y que tengan conocimiento íntimo de sus communidades.

ONLY A FRACTION of persons newly infected with venereal disease voluntarily seek medical care. The remainder are asymptomatic or do not suspect a serious disease. Accordingly, epidemiology becomes the motivating force which brings many persons, infected or exposed, to medical attention.

Essentially, syphilis epidemiology is divided into two basic elements, contact interviewing and contact investigation, with a third and equally important technique, clustering, supplementing and being closely entwined with both interviewing and investigation. I shall limit my discussion primarily to the investigator and the techniques he utilizes.

Field Investigation Defined

Field investigation is the process by which the venereal disease worker locates and brings to examination:

(1) Contacts and suspects who have been named in the interview;
(2) People who are reported to have reactive syphilis tests but who are not under medical care; and
(3) Other people who may be suspected of having syphilis;

and to motivate these individuals to report quickly to physicians or clinics for medical examinations to determine the presence of infection.

This is a difficult assignment. At its simplest, it involves achieving action in an area of human behavior that involves the very core of an individual's emotional life. Thus, the investigator must possess qualities that will enable him to achieve the purposes of his investigation and at the same time preserve the emotional well-being, and the social, family and community status of the person being investigated.

Qualities of Successful Investigator

All of the qualities of the venereal disease worker as an interviewer are carried into the field when he is operating as an investigator. In this function, he is primarily the liaison between public health and the community, including the medical profession. The better his relationships are with other public health and allied agencies, the private physicians, and with the man on the street, as well as community leaders, the more effectively he will be able to perform his duties.

In the process of field investigation, he should at all times exercise discretion and diplomacy so as not to cause discomfort or embarrassment to the health department he represents, to those he investigates, or to himself. The investigator must temper his investigations with understanding, tact, tolerance, and most of all with sound judgment. These qualities are the elements of personality as well as the by-product of training. No person can be a successful investigator without them.

Guides or Rules

In every job there are certain guides or rules that must be followed. In syphilis investigation adherence to these rules is essential, as a violation of one or all of them would most certainly destroy the effectiveness of an investigator. They are:

1. Never reveal the name of an informant to a contact.
2. Never tell a contact or a suspect that he actually has a disease.
3. Never gossip. The investigator will learn much about people in the community. His job is not to spread rumors. Loose talk will reduce his effectiveness to zero.
4. Never become a "messenger boy." Every effort should be made to see the suspected individual personally. However, if necessary to leave an appointment card, it should infer importance, not mention any disease, and should state the time, the day and place to report. The card should be placed in a plain sealed envelope with the person's name on it and marked "personal."
5. Never take medical records into the field. If they must be taken on occasion, they should be carried in such a way as to prevent loss, and never shown or displayed in any way.

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Speed and Flexibility

Speed is essential to investigative work. Also, the investigator should work with flexibility permitting him to establish priority cases. Should the investigator find that a contact has moved out of his area, he should call this information back to the appropriate investigating area immediately by telephone. Likewise, when investigating a case that originated in another jurisdiction, he should telephone the results back to the originating office. This procedure promotes rapid investigation and assures an early disposition of the suspected person.

Priorities

Although health departments are charged with the responsibility of controlling all of the venereal diseases, priority of operation emphasizes the syphilis eradication program. Generally speaking, infectious syphilis investigations will receive priority over investigations for the other four venereal diseases.

Certain syphilis investigations should receive priority. Of emergency importance are contacts to primary and secondary syphilis, teenagers and young adults with high titered reactive serologic tests for syphilis, and any cluster suspect or associate indicated to have lesions. Of almost equal importance is the investigation of contacts of early latent syphilis; other older individuals with high titered reactive serologic tests, and all other cluster suspects and associates not mentioned above. Of lesser importance are persons with low titered or weakly reactive serologic tests for syphilis.

It is certainly important to be concerned with priorities but from a practical operating standpoint, it is also important to consider speed of investigation. Investigations should be arranged according to geographical location so that by accomplishing the most in the shortest period of time, the investigator may best satisfy both priority and speed in all syphilis investigations.

Sources of Information

The most helpful tool the investigator has is his "sources of information." These are numerous and invaluable and must be protected by the investigator.

Any investigator usually becomes well known in the area he serves. Therefore, he must always keep promised confidences. He must earn the label of being a "right guy." He will always find it necessary to talk to many people on behalf of persons he is required to investigate. However, in soliciting, locating, or obtaining other information about these individuals, it is always important to approach these situations with tact and caution so as to avoid causing any embarrassment to the suspect or a disturbance of the suspect's community status. Certainly, the investigator will never reveal the exact nature of his interest in any specific individual.

Some examples of the type of relations which the investigator must cultivate to be successful are as follows:

He must enlist the help of community leaders, whether desirable or undesirable. He will deal with all levels of society and therefore will need help from every segment of the community.

He must be sure patients become "satisfied customers." He can number them among his best sources of information when working in their neighborhood.

He must know the places where people gather to spend leisure and social time. It is advisable to become friends of the owner, manager, waitresses, bartenders, et cetera, of certain establishments. These people can supply much helpful information.

In investigating teenagers with limited information, certain school principals and teachers may be able to offer very helpful information. They are usually very sympathetic with the program and anxious to help the investigator.

The local welfare office caters to many of the same persons who are involved in a venereal disease situation. They will sometimes be able to furnish both locating information and other useful information about the suspected person and his environment.

In rural areas the cross-road storekeeper and the rural route mailman are good sources of information.

Police and sheriff's files and their knowledge of the whereabouts of people in their community are also good sources of information. They are recommended to be used as a last resort and in such a manner that the investigator will never be associated with these law enforcement groups.

Problems

Investigation in many instances is difficult. Many people are suspicious of strangers; particularly certain ethnic groups with intense racial or community loyalties. It takes a great amount of skill and tact to gain the confidence

of these people and to be able to obtain their cooperation.

The great mobility of people today poses another problem for the investigator. Many times people involved in syphilis situations are highly mobile with few roots in any community. Their casual mode of life often leaves a slim trail for the investigator to follow.

Another problem is the desire to "protect" those involved in the situation. This may be particularly true where deviant sex behavior is a factor—the fear of legal and social condemnation being greater than the fear of the disease.

Selection and Training of Investigators

The selection and training of investigators is extremely important. They should be selected on the basis of personality and other essential factors, and trained in the discreet handling of confidential matters relating to syphilis patients.

Obviously, he should receive the kind of formal classroom training that would provide a knowledge of the rules and fundamentals mentioned. And, most important, his in-service training should enable him to know his community literally inside out. One of the best techniques of in-service training is for the new investigator to accompany an experienced investigator on his work, absorbing the essentials, and subtleties of investigation.

In addition, new investigators must learn the philosophy behind syphilis investigation. In essence, it is the same philosophy that motivates all health workers—**Service.** But there is an urgency to this service that perhaps is not present in other public health areas. Syphilis investigation, to be of value, must be performed with immediacy. **Individuals who are to be investigated must be found and treated, if infected, before they can transmit the disease to others.** Thus, it is the task of the investigator to reach these people almost as soon as he learns that they need to be examined. Above all, this is not a game of cops and robbers. It is very serious business involving the health and happiness of untold numbers of people.

The goal of syphilis eradication can be achieved. And the degree of progress toward this goal is dependent to a great extent upon the effectiveness of investigation. Investigation must be undertaken with thoroughness, wisdom, tact, and speed if it is to achieve its true potential as a weapon against syphilis.

Role of the Nongovernmental Organization in Syphilis Control

T. LEFOY RICHMAN

ABSTRACT

In democratic countries syphilis cannot be controlled without the leadership of non-governmental organizations.

The U.S. has about 100,000 non-governmental voluntary organizations; 100,000 fraternal, civic, veterans', and related organizations; and 300,000 churches—all offering various types of health and welfare services. The number of such organizations specifically concerned with public health and welfare on the national level comes to 100, and contributions to these causes came to over 1½ billion dollars in 1958.

In the half-century of its existence the American Social Hygiene Association has developed legislation at state and federal levels to implement the control of V.D. It has also investigated prostitution and V.D. in cities and states and has acted to coordinate efforts of schools, civic organizations, and health and police departments in education and control measures.

The growth of cities and its attending social phenomena have been a factor in the increase of syphilis here and abroad. Increase in the U.S. since 1957 has been over 150 percent, and over 132 percent among teenagers. It appears that the chief victims are among the elements of the population with the least responsible roles in the community.

The functions to be exerted by the non-governmental organizations in combatting syphilis may be summed up as: surveillance of the problem and remedial programs, research, demonstration, education, and coordination of volunteer and official efforts.

SOMMAIRE

Dans les pays démocratiques, la syphilis ne peut pas être controlée sans la participation d'organisations non-gouvernementales à la tête du mouvement.

Les Etats-Unis possèdent environ 100,000 organisations non-gouvernementales composées de volontaires; 100,000 organisations fraternelles, civiques, d'anciens combattants, et analogues; et 300,000 églises. Tous ces organismes offrent des services de santé et de bienfaisance sous une forme ou une autre. Le nombre de ces organisations qui s'occupent spécifiquement de la santé et du bien-être publics à l'échelle national se monte à une centaine, et les sommes contribuées à leurs programmes s'élevaient à plus d'un milliard et demi de dollars en 1958.

Depuis le demi-siècle de son existence, l'Association américaine pour l'hygiène sociale a encouragé la promulgation de législation aux niveaux des états et de l'union fédérale destinés à initier ou à perfectionner des mesures de contrôle des maladies vénériennes. Elle a également entrepris des recherches de la prostitution et des maladies vénériennes dans les villes et les états et s'est occupé de coordonner les efforts des écoles, des organisations civiques, et des services de la santé et de la police en vue de l'instruction et du contrôle.

L'accroissement des villes et les phénomènes sociaux qui en découlent ont été un facteur de l'augmentation de l'incidence de la syphilis dans ce pays ainsi qu'à l'étranger. L'augmentation aux Etats-Unis depuis 1957 a été supérieure à 150 pourcent; et celle du nombre de cas parmi les moins-de-vingt-ans, au-dessus de 132 pourcent. Il semble que la plupart des victimes se trouvent parmi les éléments de la population occupant les rôles les moins importants dans la communauté.

Les fonctions a être exercés par les organisations non-gouvernementales dans la lutte contre la syphilis peuvent se résumer de la façon suivante: surveillance du problème et des programmes destinés à y remédier, les recherches, les démonstrations, l'instruction, et la coordination des efforts volontaires ainsi qu'officiels.

RESUMEN

En paises democráticos la sífilis no se puede controlar sin el liderato de las organizaciones que no forman parte del gobierno.

Los E.U. tienen como 100,000 organizaciones voluntarias que no son parte del gobierno; 100,000 organizaciones fraternales, cívicas, de veteranos y otras relacionadas; y 300,000 iglesias—todas ofreciendo varios tipos de servicios de salud y beneficencia. El número de tales organizaciones específicamente relacionadas con salud y bienestar público en el nivel nacional llega a 100, y contribuciones a estas causas llegan a más de mil quinientos millones de dólares en 1958.

En el medio siglo de su existencia, la Asociación Americana de Higiene Social ha desarrollado legislación a niveles estatales y federales para implementar el control de la enfermedad venérea. También ha investigado la prostitución y enfermedad venérea en ciudades y estados y ha actuado para coordinar esfuerzos de escuelas, organizaciones cívicas y departamentos de salud y policía en medidas de educación y control.

El crecimiento de ciudades y sus acompañantes fenómenos sociales ha sido un factor en el aumento de sífilis aquí y en el extranjero. El aumento en los Estados Unidos desde 1957 ha sido de más de 150 por ciento, y sobre 132 por ciento entre los adolescentes. Tal parece que las víctimas principales están entre los elementos de la población que desempeñan las funciones menos responsables en la comunidad.

Las funciones a ser llevadas a cabo por las organizaciones que no son parte del gobierno para combatir la sífilis se pueden resumir como sigue: vigilancia del problema y programas para remediarlo, investigación, demostración, educación y coordinación de esfuerzos voluntarios y oficiales.

I AM GOING to lead with a flat, unqualified statement about syphilis and its control. In countries whose political structure is basically democratic, syphilis cannot be controlled without the effective leadership of non-governmental organizations.

And by leadership, I do not mean merely the passive acceptance of existing services or lack of services. I mean active, critical, pioneering, venturesome, research-and-demonstration-oriented leadership. I mean leadership that reflects the concern of non-professional citizens, outside government, voluntarily giving their time to board and committee work that stimulates and directs effective action.

"But," you will say, "Health Departments do the work of finding, diagnosing and treating patients. Health Departments supply the drugs and the clinics. Health Departments interview and investigate. Health Departments even supply education materials to professional and civic organizations and to schools. Moreover, health department programs for syphilis control are improving. So why this non-governmental, voluntary leadership in the control of syphilis?"

You may consider this paper an answer to that question. It is pertinent, not only to syphilis, but to all other health problems sufficiently important to have attracted the concern and support of non-governmental organizations.

In this country there are many non-governmental organizations. A church is a non-governmental organization and so is an insurance company and a book store and an advertising firm and a restaurant and a gas station and the American Social Health Association.

But the kind of non-governmental organization (Let's call it NGO from now on!) we are talking about is also non-profit. That leaves ASHA and the church. And if we further limit our NGO to a voluntary association of members who encourage volunteer service and whose purpose is the prevention and control of syphilis, we still have ASHA and the church. But that, as we shall see later, may be all for the best.

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There are roughly 100,000 non-governmental, voluntary organizations in the United States, plus 100,000 fraternal, civic, veterans and related organizations, plus 300,000 churches. All offer various types of health and welfare services.

Since 1940, the number of National NGOs concerned with health and welfare has increased from 15 to 100. Between 1940 and 1958, total contributions to nonreligious health and welfare agencies increased by about 8 times, from 188 million dollars to over 1.5 billion dollars. I recite these figures merely to demonstrate that the concept of the non-governmental agency in the field of health and welfare has assumed a prominent place in our society and a substantial position in our economy.

ASHA

Since the 1880's, organizations concerned with social reform have worked at mobilizing opinion and resources in New York City, Chicago, St. Louis, San Francisco, Boston, Cleveland and other American cities to fight prostitution and its by-products, one of which was the spread of syphilis. In 1912, these agencies combined their efforts and resources into a single organization called the American Social Hygiene Association. Prominent among the Association's objectives was the prevention and control of the venereal diseases.

During the half-century of its existence, the Association has developed legislation at State and Federal levels to implement the control of venereal diseases. It has conducted periodic studies of prostitution and V.D. in cities and States. It has acted to co-ordinate the efforts of schools, civic organizations, health and police departments in education and control measures. It has prepared studies and released them to professionals and the public. And in two world wars, it has exercised leadership in bringing the problem of venereal disease to the attention of the military, the public, health departments and other government agencies.

One cannot do justice to the accomplishments of ASHA in a single paragraph. And besides, one is reminded of the important contributions in recent years of the American Venereal Disease Association and the Association of State and Territorial Health Officers, organizations that have cooperated generously and effectively

in the V.D. control effort, along with the Army, the Navy and the Air Force.

The Metropolitan Complex

We are reminded, too, that in the past two decades, the American Community has changed almost beyond recognition, and that methods and organizing principles that were effective, even 10 years ago, no longer suffice. Not so long ago, American cities were distinct communities, surrounded by distinguishable satellite towns with green grass and trees or at least city dumps in between. That was when we were younger, when over half the people in the United States lived on farms or in farm communities. Now, when 7 of every 10 of us live in towns or in cities, the metropolitan complex has become the rule. There is no "in between," greenery or city dump, and the city sprawls over former townships and suburban communities and out along the highways in a garish display of planless and uncontrolled exploitation.

The metropolitan complex with: more people, more automobiles, more shopping centers, less concern for the individual, less regard for property, less regard for law, more tensions, more conflicts, more young people without goals or aspiration, less pride in community, less involvement with neighbors, less tolerance of others' views. This is the setting for the astonishing increase in the rate of early, infectious syphilis in this and other countries. This is the setting for, not only the battle against syphilis, but against other health problems as well.

Increase in Syphilis

In this country, the reported cases of early infectious syphilis have increased by over 150% since 1957—by over 132% among teenagers. There is substantial justification for the position that this increase in reported infectious syphilis is real—that it is not solely a function of casefinding or reporting, that it represents an actual increase in the occurrence of syphilis. This is true in the United States; it is true in Western Europe; it is true in Canada.

Studies of the epidemiology of syphilis in recent years permit the speculation that the populations chiefly at risk are those who have the least responsible role in the community—the transient, the reservation Indian, men in the armed forces, racial minorities, the migrant worker, and teenagers in a setting that offers opportunity for infection from older persons.

Nongovernmental Organization Leadership

Specifically then, what is the role of the nongovernmental organization in combatting the syphilis problem as we have briefly described it? What is required of NGO leadership?

There are at least five demands on NGO leadership that I should like to discuss, and not necessarily in the order of their importance: surveillance of problem and program, research, demonstration, education and co-ordination of volunteer and official agency effort.

Surveillance

Surveillance means keeping track of something. A watchman exercises surveillance. It is a constant process. Conventionally it is accomplished by reporting from field representatives, who are able to assess program and problem as they move from place to place, talking with health officials, civic leaders and the public. Such reporting provides, not only the necessary intelligence to assess the program effort, but also feed-back to the program directors.

In its function of surveillance agent, the NGO may not permit itself to become committed to program, technique or program leadership. It must remain free to use the facts as it interprets them, to speak up boldly *against*, as well as *for*. Surveillance provides to all individuals involved in the control of syphilis the awareness and the current information that make possible effective communication and timely action.

Research

NGO leadership requires research. The NGO need not always carry out the research, but it must constantly be stimulating it. Surveillance alerts it to program needs that await further research and to the organizations and the individuals best qualified to do it. It is, in this respect, a non-profit entrepreneur, bringing the *problems* to the attention of the *investigative skills*.

Often, because of its known concern and responsible action in the field, the NGO itself may best be qualified to direct the research. This was true in the case of the international study of prostitution carried out by ASHA. It was also true of its studies in sexual behavior among teenagers.

Demonstration

The NGO is perhaps most effective as a demonstrator. This is pioneering in the best sense of the word.

As research moves along and suggestions for program begin to emerge, the NGO should be alert for demonstration opportunities. The new idea, the unorthodox process, the untried method—these not only can best be tested on a small scale by the NGO, but the testing can be used to call public attention to the problem.

The beginning of the promotion of a health program is most often the demonstration. It is in this area, it seems to me, that present NGOs concerned with syphilis control are least effective. I can think of no demonstration of program or program facility in syphilis control in the United States presently under the sponsorship of NGOs. Studies and research, yes. Education, yes. Surveillance, yes. But demonstrations, no.

And yet, there is no end of demonstration need and opportunity. Among them: techniques for getting V.D. education into schools—known and tested in some areas, but not widely demonstrated; use of TV as a V.D. education device—again known and tested in scattered areas, but not widely demonstrated; techniques for raising the index of suspicion among physicians. And there are others.

Education

The fourth responsibility of NGO leadership is education—professional and public, direct and indirect, in schools and through mass media. For purposes of this discussion, I should like to substitute the word agitate for educate. Agitate means to put in motion. And that is what the NGO education program for syphilis control should achieve.

We have an abundance of tested, accurate information about syphilis, both clinical and epidemiological. We have adequate skills, and we have acceptable diagnosis and therapy. Although we need continuing research, we do not have to wait for it. But we do not now have an agitation program to match these resources. Such activity can come only from or through the NGOs.

There are good reasons why democratic governments must be cautious about education and why agitation is out of the question for them. Section 201 of title 18, United States Code, reads in part as follows: "No part of the money appropriated by any act shall, in the absence of express authorization by Congress, be used directly or indirectly to pay for any personal service, advertisement, telegram, letter, printed or written matter, or other device intended or designed to influence in any manner a member of Congress, to favor or oppose by vote or otherwise, any legislation or appropriation by Congress, either before or after the introduction of any bill or resolution proposing such legislation or appropriation."

Any effective agitation program carried on by a Government agency would be likely to be construed as violating this title of the U.S. Code or similar state codes. For that reason, if for no other, leadership in agitation in support of syphilis control programs must be almost exclusively the responsibility of the NGOs. The NGO's stance is that of public spokesman and public conscience insofar as its special interest is concerned. It may seek to educate legislators, presenting them with both information and a point of view. It may promote, agitate, propagandize so long as it reports its activities truly and faithfully to its contributors and respects the law.

Coordination

NGO leadership must assume the responsibility of co-ordinating the volunteer effort. In the control of syphilis, the potential volunteer effort is considerable. Churches, we said at the beginning, are NGOs, interested in health and welfare problems. They have been willing to provide both agitation resources and physical facilities in mass screening campaigns. They provide discussion groups where problems of youth, including venereal disease, are talked about. They are especially eager to help in those measures which strengthen the family and educate for more productive family living.

The mass media are NGOs, and they have, in the past 20 years, demonstrated their willingness and effectiveness in awakening the public to the nature and danger of syphilis. And there are many more, including business and industrial organizations that are willing to cooperate, providing they are impressed with the need for their service and have confidence in the co-ordinating agency. All the youth-serving agencies come into this group, the service clubs—Rotary, Chamber of Commerce, Kiwanis, Lion's Club—the Parent-Teacher organizations, which have already assumed a substantial responsibility in family life education, and such professional groups as the Council for Family Life Education.

Throughout this paper, I have made heavy use of the word, *Leadership*. Leadership is responsible involvement, with vision and imagination. Leadership is never easy. Leadership, like acrobatics, must have the appearance of ease at the expense of the most demanding of

discipline. Leadership by the NGOs, operating as they do on small budgets and with minimum staffs, is an especially difficult role to play. And yet, if they are to be effective in any field of public health, they must assume the role of leadership. It is indeed a challenging task; and its reward is chiefly the callouses on both psyche and soma which come from hard work. But syphilis will never be controlled in this country without the leadership of non-governmental agencies, and hard and skillful work is what that leadership adds up to.

Role of Nongovernmental Agencies in Control of Venereal Diseases and Treponematoses

GIOVANNI A. CANAPERIA, M.D.

ABSTRACT

Voluntary organizations have played a vital role in the control of V.D. in the past 60 years. An example is the Société de prophylaxie sanitaire et morale (Society for Sanitary and Moral Prophylaxis) created in France by Professor Fournier in 1901, which has done remarkable work in the fight against V.D. On the international level is the International Union Against Venereal Diseases and Treponematoses established in 1923. Thanks to such non-governmental agencies appropriate legislation has been enacted in most countries to control V.D.

Voluntary organizations are useful even in countries where official agencies exist: they can start new projects with greater elasticity, better act on public opinion, and with their numerous contacts provide data for government programs.

Non-governmental agencies have the merit of recently warning against the over-optimistic idea that V.D. was no longer a problem. They can play an important part in stimulating case-finding, reporting, and contact investigations by private physicians. Some actively stimulate awareness of the importance of V.D. in medical schools. Many epidemiological surveys have been made by voluntary agencies in recent years. They also have a unique role to play in the study of social factors leading to V.D. infection. Educational activities represent the backbone of voluntary efforts in the fight against V.D.

SOMMAIRE

Les organisations de volontaires ont joué un rôle essentiel dans le contrôle des maladies vénériennes depuis 60 ans. A titre d'exemple, on pourrait citer la Société de prophylaxie sanitaire et morale créée en France par le professeur Fournier en 1901, qui a accompli un travail remarquable dans la lutte contre les maladies vénériennes. Sur le plan international il y a l'Union internationale contre les maladies vénériennes et les tréponématoses, établie en 1923. Grâce à de tels organismes non-gouvernementaux, des textes législatifs nécessaires ont été promulgués dans la plupart des pays afin d'y contrôler les maladies vénériennes.

Les organisations volontaires exercent une fonction utile même dans les pays où des organismes officiels existent: elles sont à même d'initier de nouveaux projets avec plus d'élasticité que ces derniers, sont en meilleure posture pour agir sur l'opinion publique, et, avec leurs nombreux contacts, procurent des renseignements utiles pour les programmes gouvernementaux.

Les organismes non-gouvernementaux ont le mérite d'avoir lancé récemment des avertissements contre l'impression par trop optimiste, que les maladies vénériennes ne représentaient plus un problème. Ils peuvent prendre une part importante dans le dépistage et la déclaration des cas de maladie, ainsi que dans la recherche des contacts par les médecins privés. Certaines organisations stimulent activement dans les facultés de médecine une prise de conscience de l'importance des maladies vénériennes. Un bon nombre d'études épidémiologiques ont été menées par des organismes volontaires au cours des années récentes. Ceux-ci ont également un rôle unique à jouer dans la recherche des facteurs sociaux qui entraînent l'infection vénérienne. Cependant, ce sont les activités éducatives qui forment le fond essentiel des efforts volontaires dans la lutte contre les maladies vénériennes.

RESUMEN

Las organizaciones compuestas de voluntarios han jugado un papel de gran importancia en el control de las enfermedades venéreas en los últimos 60 años. Como ejemplo se cita la "Société de prophylaxie sanitaire et morale" (La Sociedad de Profilaxia Sanitaria y Moral), establecida en Francia en 1901 por el Profesor Fournier, la cual ha realizado una extraordinaria labor en la lucha contra las enfermedades venéreas. Al nivel internacional podemos citar la Unión Internacional contra las Enfermedades Venéreas y las Treponematosis, establecida en 1923. Gracias a estas organizaciones no gubernamentales se ha podido promulgar leyes adecuadas para controlar las enfermedades venéreas en la mayoría de los países.

Las organizaciones voluntarias son útiles aún en países donde existen agencias oficiales debido a que tienen la ventaja de iniciar proyectos con mayor elasticidad, ejercen más influencia sobre la opinión pública, y facilitan información, a través de sus numerosos contactos, que luego se utiliza en los programas gubernamentales.

A las organizaciones no gubernamentales les cabe el gran mérito de haber sido las que, recientemente, empezaron a prevenir al público contra la idea op-

timista de que las enfermedades venéreas ya no constituyen un problema. Ellas pueden jugar un papel importante estimulando la búsqueda de casos, la notificación y la investigación de contactos por parte de los médicos que ejercen la práctica privada. Algunas estimulan en forma activa la importancia que se le debe atribuir a las enfermedades venéreas en las escuelas de medicina. Varias organizaciones voluntarias han realizado investigaciones epidemiológicas en los últimos años. También juegan un papel importante en el estudio de los factores sociales que conducen a la infección por enfermedades venéreas. Las actividades educativas representan la base de los esfuerzos voluntarios en la lucha contra las enfermedades venéreas.

THERE CAN BE no doubt—if one considers the historical development of the control of venereal diseases during these past 60 years—that voluntary organisations have played a very important role in this field.

Even before official, organised action had been taken by public authorities, some nongovernmental organisation was established in many countries; it undertook pioneering work, bringing to the attention of the Governments and of the public in general, the danger that venereal diseases represented for the health of communities; collecting and spreading information; conducting research in both the medical and the social fields; organising and operating pilot centres for detection, diagnosis, treatment, and control of V.D.

I would just like to mention here, as an example among many others of this pioneering work, one of our member agencies: the Société de Prophylaxie Sanitaire et Morale, created in France by Prof. Fournier in 1901, which did, and still does, a most remarkable work in the fight against V.D.

The work done by National nongovernmental agencies finds its counterpart on an International basis, through the activities of the International Union against the Venereal Diseases and the Treponematoses, established in 1923.

In reviewing the history of the Union during its forty years of life, one can see, through its resolutions, recommendations, surveys, studies, publications, the development of the organisation of V.D. control and the value and potentiality of voluntary action.

Thanks mostly to the stimulation and influence of those nongovernmental agencies, appropriate legislation was issued in almost every country and V.D. control was officially organised, and integrated within the programmes of National Health Administrations.

Support of Government Programmes

But even when there exists a Governmental organised service in the same field, the role of a nongovernmental agency is still most important in its support and cooperation of the official programmes. It can start new projects and adjust them to the changing needs with greater flexibility; it can better act on the public opinion and stimulate and promote the interest and participation of the population; it can undertake studies and surveys; and with its numerous and varied contacts within the community it can provide leading experience for the Government's programmes.

Awakening Concern for Increased V.D.

Voluntary agencies concerned nationally and internationally with the problems of V.D. control, may claim the merit of having repeatedly issued warnings during these recent years against the too optimistic idea prevailing among the public and among medical men, that venereal diseases were no longer a Health Community problem and that the structure of the organisation could therefore be greatly reduced.

It is gratifying to notice that there is at present a reawakening of concern for the increase in these diseases, particularly syphilis; a growing awareness that V.D. still represents a very important health problem, and that greater efforts are therefore needed for the development of more efficient epidemiological methods and for the application of practical control—and possibly eradication—measures.

In the present situation, what role can the nongovernmental agencies play in this field?

It is of course not possible to set up a standard formula which can be applied everywhere, because the functions of the nongovernmental organisations may vary a great deal according to the nature and the extent of the problem, to the greater or lesser efficiency of V.D. control programmes organised by the Health Administration, to the means, resources and vitality of the voluntary organisation. Among the various reports we have received, we try to sort out those which show the most promising activities carried out in the medical and in the socio-educational fields by voluntary organisations in cooperation and in support of the Government programmes.

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Epidemiological Assistance

It is universally agreed that syphilis control—just as the control of any other infectious disease—must be based on epidemiological methods.

The application of such methods to prevention, diagnosis and treatment cannot produce full results without the cooperation of the medical profession. The voluntary organisations can play a very important role in stimulating case-finding, reporting, and contact-investigations by private physicians. Many reports outline the activities undertaken in order to promote a more active participation and a more effective contribution to V.D. programmes by the practitioners. In some cases courses have been promoted and organised for medical and auxiliary workers, and for training non-medical personnel in contact-tracing and interviewing-techniques.

The need of emphasizing in medical schools the importance of syphilis and, generally, of all V.D. problems, is felt, and some organisations take an active part in stimulating such a development.

Many epidemiological surveys and "spot" studies have been carried out by national voluntary agencies during recent years, in order to secure some specific data on the extent and incidence of V.D. The results of such surveys have enabled the organisations to direct the attention of public opinion, of the medical profession and of the political leaders, to the significance and to the seriousness of the problem as well as to the necessity of strengthening by all available means the control measures.

On the whole national organisations have been very active in this field and I should like to quote here, as an example, the good work done by the Sociedad Colombiana de Sifilogia y Venereologia, which organised two seminars, in 1960 and in 1961. During these seminars V.D. problems in Colombia were examined from the medico-social points of view and some recommendations were issued, urging the Health Authorities to take active steps for the organisation of an efficient campaign against the danger of the increasing incidence of venereal infections.

Medico-Social and Behavioural Studies

Among the other roles of a nongovernmental organisation is that of endeavouring to identify and to survey special medico-social problems in its particular field. This is especially true in the field of V.D. and treponematoses in which research in social and behavioural sciences is of the utmost importance for guidance in the action of control. The importance of the social aspects, in this field, is very well established, and the present Forum is setting a good example by dedicating one session of its scientific discussions to behavioural studies in which the psycho-socio-cultural aspects related to V.D. are especially emphasized.

Voluntary organisations have a unique role to play in the study of the social factors leading to V.D. infections. Thanks to their formation, to their close contacts with the community, they can better undertake such studies through the multiprofessional approach which is needed and with the participation of the population concerned.

The rising trend of V.D. is in fact a symptom of a more far reaching problem: of a social illness, characterised by a disruption of family life, a changed moral outlook, an increase in prostitution and promiscuity.

Many nongovernmental organisations have been very active in this field promoting, and cooperating with, social research, or undertaking directly some specific study. Among the special problems which have been dealt with, are: a study of the sexual habits of young people in relation to the increased attack rate of V.D. among teenagers; surveys on prostitution conditions and their impact on V.D. Particular attention has been paid to the problem of homosexuality and spread of V.D. One of the voluntary societies has published articles on syphilis in a homosexual journal, with the result that many homosexuals asked for a control. The result of this control was that 10% of them were discovered to have either syphilitic manifestations or a positive serology.

Educational Activities

Educational activities always have represented, and represent now, the backbone of the voluntary efforts in the field of V.D. These activities aim at two goals: improving the knowledge of V.D. problems; and bringing about a change for the better in the behaviour and attitude of people. A broader approach might include family life education as an essential preventive measure against social disorder and, indirectly, against the spread of V.D.

All anti-venereal nongovernmental organisations are very active in the field of education. Education about V.D. in schools is considered especially important and so are the related problems of sex education among the young

people. Here the cooperation with teachers and educators, as well as with social workers, psychologists, families, and the community at large, is essential. And this accounts for the better opportunities of achievement which are offered to voluntary bodies.

Great is the contribution of nongovernmental organisations towards the production of educational media (leaflets, pamphlets, posters, filmstrips, films) and towards a study of the usefulness and efficiency of such material, through the evaluation of the results obtained in different situations and among various groups.

It can be stated, to conclude, that nongovernment organisations, through their activities in the medical and in the socio-educational fields can offer a very valuable contribution towards the ultimate and most difficult goal which still lies ahead of us: eradication of V.D. and treponematoses.

International Cooperation

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ABSTRACT

International cooperation to localize and to limit the spread of syphilis and other treponematoses is a reality in present health administration practice, which can assist tremendously in reaching a solution to eradication problems. Pertinent facts regarding the spread of these diseases should be widely discussed and publicized at all levels; i.e., local, national, and international, in order to counteract their spread.

An example of international cooperation is the work carried out at the United States-Mexico border, which has over 100 million crossings a year. The authorities of both countries, with the cooperation of the El Paso Field Office of the Pan American Health Organization, have taken various important measures to control V.D.

This approach should be recognized as successful in a fairly well defined, though extensive geographic area, and it may serve as a pattern for other countries facing problems of the same kind. The downward trend of syphilis rates may be observed in statistics for Ciudad Juarez, Mexico, which in 1956 had 653 cases, while in 1961, there were only 275 cases.

Another example of international cooperation in this field is the yaws eradication program carried out in Haiti and the Dominican Republic with the technical cooperation of the PAHO and the WHO, as well as the material assistance of UNICEF.

In Haiti, the Yaws Eradication Program began in 1950. In the Dominican Republic, where the problem of yaws was recognizably smaller, the program began a few years later. The success of the program may be seen in the following figures: Haiti, where eradication activities are in surveillance and consolidation phases, had only nine cases reported from January to June 1962, from an estimated population of 4,330,000; the Dominican Republic reported 26 cases from January to June 1962, from an estimated population of 3,000,000 in 1960.

SOMMAIRE

La coopération internationale dans le but de circonscrire la syphilis et autres tréponématoses et d'enrayer leur propagation est une réalité des méthodes actuelles d'administration de l'hygiène qui peut aider énormément à résoudre les problèmes posés par la suppression de ces maladies. Les faits se rapportant à leur propagation devraient faire l'objet de nombreuses discussions et être diffusés à tous les niveaux, local, national et international, pour faire obstacle à cette propagation.

Un tel exemple de coopération internationale est l'oeuvre accomplie à la frontière des Etats-Unis et du Mexique, qui est traversée plus de 100 millions de fois par an. Les autorités des deux pays, avec la collaboration du Bureau Local d'El Paso de l'Organisation Sanitaire Panaméricaine, ont pris des mesures importantes pour lutter contre les maladies vénériennes.

On doit considérer que cette façon d'aborder le problème a bien réussi dans une région géographique assez nettement délimitée quoique très étendue; elle servira peut-être de modèle à d'autres pays confrontés avec des problèmes analogues. On peut observer une tendance au déclin des taux de syphilis dans les statistiques de Ciudad Juarez (Mexique), qui avait 653 cas en 1956 et n'en avait plus que 275 en 1961.

Un autre exemple de coopération internationale dans ce domaine est le programme de suppression du pian réalisé à Haiti et dans la République Dominicaine avec la collaboration technique de l'Organisation Sanitaire Panaméricaine et de l'Organisation Mondiale de la Santé, aussi bien que l'aide matérielle du Fonds des Nations Unies pour l'Enfance.

A Haiti, le Programme de Suppression du Pian commença en 1950. Dans la République Dominicaine, où le problème du pian était reconnu comme moins important, le programme débuta quelques années plus tard. Le succès de ce programme est visible dans les chiffres suivants: Haiti, où les procédés de suppression ont atteint les phases de surveillance et de consolidation, n'a eu que 9 cas signalés de janvier à juin 1962, sur une population évaluée à 4,330,000 habitants; la République Dominicaine a signalé 26 cas de janvier à juin 1962, sur une population évaluée en 1960 à 3,000,000 d'habitants.

RESUMEN

En la práctica de administración sanitaria actual, la cooperación internacional juega un papel preponderante para confinar y limitar la propagación de la sífilis y otros treponemas, la cual puede ayudar muchísimo a resolver los problemas de erradicación. Los hechos pertinentes a la propagación de estas enfermedades deben discutirse ampliamente y publicarse en todos los ámbitos, ya sean locales, nacionales o internacionales, para contrarrestar su propagación.

Como ejemplo de cooperación internacional se puede citar la labor que se lleva a cabo en la frontera entre los Estados Unidos y México, la cual es cruzada más de 100 millones de veces al año. Las autoridades de ambos países, con la cooperación de la Oficina de Campaña de la Organización Pan Americana de la Salud en El Paso, han tomado varias medidas importantes para el control de las enfermedades venéreas.

Debe reconocerse que esta cooperación es exitosa en esta área geográfica que aunque extensa, es bien definida, y puede servir de norma para otros países con la misma clase de problemas. La tendencia al declive del porcentaje de la sífilis puede ser observada en los

datos estadísticos de la Ciudad Juárez, México, que tuvo 653 casos en 1956, mientras que en 1961 sólo hubieron 275 casos.

Otro ejemplo de cooperación internacional en esta materia, es el programa que se lleva a cabo en Haiti y la República Dominicana para la erradicación de la frambesia, con la ayuda técnica de la Organización Pan Americana de la Salud y de la Organización Mundial de la Salud, así como la ayuda material de la UNICEF (Fon de Emergencia para Niños de las Naciones Unidas).

El programa para la erradicación de la frambesia en Haiti comenzó en 1950. En la República Dominicana, donde este problema era claramente menor, el programa empezó unos años más tarde. En las cifras que siguen se puede apreciar el éxito del programa: en Haiti, cuya población se calcula en 4,330,000 habitantes, y donde las actividades de erradicación están en las fases de vigilancia y consolidación, hubieron, desde enero hasta junio de 1962, nueve casos que se dieron a conocer; en la República Dominicana, con una población calculada en 3,000,000 de habitantes en 1960, se dieron a conocer 26 casos entre enero y junio de 1962.

ONE OF THE most important areas of activity in the field of syphilis control and treponematosis eradication lies in the realm of cooperation between countries, in order to localize, to circumscribe and to limit the spread of these diseases which still constitute a public health problem in practically every country of the world. Whether this problem is of a minor or of a major importance, remains to be clarified in many world areas due, primarily, to the dearth of reliable and timely statistical data.

We strongly believe that some of the pertinent facts regarding the spread of syphilis and other treponemal diseases, should be widely discussed and publicized at all levels; i.e., local, national and international, in order to counteract their spread with the necessary measures known and available to public health administrators, epidemiologists and venereal disease specialists, with the final goal of eventually terminating the threat to current and future generations, of becoming infected with the *Treponema pallidum* or with other *treponema*, such as they do exist.

Foremost in the spread of syphilis and other treponematosis are such factors as easy and rapid transportation, the increase in tourist trade and the upsurge of population migratory moves of many variations, such as temporary or seasonal population movements, religious pilgrimages, or even permanent or quasi-permanent migrations. We shall presently discuss some of the phenomena in more detail, as they apply in well known areas of the Western Hemisphere. On the other hand, it is our belief, I repeat, that we have at our disposal many mechanisms and procedures to deal effectively with the problems caused by most of these old and new epidemiological and administrative considerations of basic venereal disease control work.

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We do have the tendency—at least most of us have it—of thinking that new problems are constantly being unfolded in venereal disease control activities, when in reality very little has changed in the basic elements of the underlying facts, except that some of the old difficulties have either taken a new appearance or have changed in their degree of intensity and/or importance.

As a career officer of the Pan American Health Organization, Regional Office for the Americas of the World Health Organization, dealing every day with health matters at the international level in various countries living under extremely different sets of social, political and economic conditions, I wish to present some of these problems as we see them and to outline possible solutions or alleys of approach which the Pan American Health Organization and the World Health Organization are in a position to either recommend or to suggest to national health administrations, for their careful consideration and eventual implementation, if found feasible and sound.

Discussion

There are various ways of looking at the problem of syphilis control and treponematosis eradication, vis-a-vis of international cooperation. Let us begin by examining a particular area, such as the United States-Mexico Border. According to latest statistics, this particular border is the most travelled one, with over one hundred million crossings a year, of which 25% are accounted for by the Ciudad Juárez-El Paso international bridges.

Problems and Solutions of Mexico-U.S. Border

This border area is fairly well characterized by its own ways of health administration practices, health hazards, population trends, and is quickly recognized at determined points by the presence of fast growing cities, of the twin variety in most instances. What have been the

problems in this area, from the standpoint of syphilis? To begin with, the local authorities from both sides of the Border, for many years have been deeply aware that there exists a permanent two-way flow of individuals crossing the Border and facing health hazards of one kind or another. These persons may cross it for various reasons: (a) to work daily, temporarily or even permanently; (b) to seek distraction; and (c) for other multiple reasons. Some of these people have become, or are prone to become, infected with syphilis in the various ways and places very well known to epidemiologists, and the rise and fall of the number of infectious cases of syphilis have been of paramount interest to local health authorities in order to find reasonable answers to the problem without unduly hurting tourism, trade and friendly relations.

What have been the solutions proposed and efficiently carried out by the authorities of both countries, with the cooperation of the Pan American Health Organization-El Paso Field Office? To wit:

1. Health education activities in the population groups most vulnerable by reason of their mores or occupation.
2. Establishment of venereal disease clinics with adequately trained personnel.
3. Promotion of standard diagnostic and treatment procedures in the venereal disease clinics on both sides of the Border.
4. Creation of bi-national health committees, with particular emphasis on venereal disease problems, and with the participation of interested citizens and health authorities from both sides of the Border.
5. Exchange, through the Pan American Sanitary Bureau, of epidemiological information.
6. The holding of periodic meetings of a technical nature to discuss critically the underlying reasons for the rise or fall of syphilis rates.

These and others have been some of the measures and procedures used to curb effectively any upward trend of syphilis. The roles of the Pan American Health Organization and of the World Health Organization have been manifold, as it may be readily understood but, primarily, our Field Office in El Paso has functioned as the focal point of liaison between the health authorities of the two countries, relentlessly bent on finding a solution to this problem. We are of the opinion that this approach should be recognized to have been successful in a fairly well limited, though extensive, geographic area, and it may serve as a pattern to be seriously considered by other countries and their national health administrations facing problems of the same kind and nature. In order to illustrate the downward trend of syphilis rates, we shall only mention the crude statistics in Ciudad Juárez, Mexico: In 1956, there were 653 cases (all forms of reported cases of syphilis) whilst in 1961 the official figures were of only 275 cases, again in all clinical forms.

As an example of international cooperation in the field of treponematosis eradication, we may cite the one conclusively demonstrated by two countries of the Western Hemisphere, located in one single island. I am here referring to the Dominican Republic and Haiti, both situated in the Island of La Hispaniola, in the Caribbean area.

Cooperation: Haiti and Dominican Republic

Most of you, if not all, are familiar with the background of the Haitian Yaws Eradication Scheme, developed practically to its logical conclusion by the Health Administration of the Republic of Haiti, with the technical cooperation of the Pan American Health Organization and the World Health Organization, as well as the material collaboration of UNICEF but, in all probability, very few have heard of a similar program also sponsored by the same agencies in the neighboring country, i.e. the Dominican Republic.

Twelve years ago, in Haiti, the Yaws Eradication Program began on July 20, 1950, and today the eradication activities find themselves in the surveillance and consolidation phases, with only 9 infectious cases reported from January to June 1962, with an estimated population in 1962 of 4,330,000 inhabitants.

In the Dominican Republic, where the problem of yaws was recognizably smaller, the program began a few years later and with somewhat different epidemiological characteristics, which will not be discussed in this presentation. Nevertheless, the results achieved are as striking as in Haiti, with a reported number of infectious cases of 26 from January to June 1962, with an estimated population in 1960 of 3.0 million inhabitants.

The role played by international cooperation in this particular case has been of a different nature than in the case of the United States-Mexico Border. The Pan American Health Organization and the World Health Organization, at the request of the governments of Haiti and the Dominican Republic, have approached the problem in the following ways:

1. By furnishing international technical teams to advise on the planning of the eradication schemes.

2. By helping in the implementation of the field activities, through advisory services of the highest technical caliber possible or available at the particular moment.

3. By collaborating in the determination of adequate penicillin dosages through extensive and protracted field and laboratory studies.

4. By promoting the establishment of the proper procedures for the surveillance and consolidation phases, and for the orderly and harmonious integration of multiple health activities, with the very limited remaining yaws work still to be carried out.

5. And, finally, but most important from the standpoint of our discussion, by promoting the setting up of adequate procedures to deal epidemiologically with nationals of both countries entering or leaving either Haiti or the Dominican Republic, thus avoiding the risk of becoming infected or re-infected with yaws.

Here again, in this particular instance, the role played by quiet but vigorous cooperation at a truly international level, has been, and still is, of paramount importance in solving a vexing technical and administrative problem, since the two countries may be considered as one epidemiological unit and also as a single universe from the point of view of the public health administrator.

We are of the opinion that efforts of this kind, if properly planned, carried out and followed to their orderly conclusion, may be examples for other regions of the world which face similar problems.

Conclusions

International cooperation to localize, to circumscribe, and to limit the spread of syphilis and other treponematoses is a reality and a fact of today's health administration practice, which can assist tremendously in reaching a solution to venereal disease and treponematosis eradication problems, if properly conceived and if a logical use of various approaches is made in a tailor-made fashion.

Examples have been given of the role played by international cooperation in two very different settings, which are presented and suggested for possible adaptation in other areas of the world facing similar problems.

Effect of International Borders and Tourism on the Spread of Syphilis

MAURICE R. VINIKOFF, M.D.

ABSTRACT

The health problems of any community in the world now greatly influence and affect all other communities.

A tourist infected with a communicable disease might expose individuals of different cities, countries and continents. Epidemiological investigation of such individuals has great magnitude.

Epidemiology is a keynote in the control of syphilis. When intercontinental areas become involved, the problem is increased to include language difficulties and absence of epidemiologic facilities.

Our experience in the El Paso, Texas and Ciudad Juarez, Mexico areas in a co-operative venereal disease control program may contribute to an international epidemiological program.

In 1942, in order to improve the control of venereal disease, a meeting was called between interested health, welfare, and law enforcement agencies, as well as nearby military installations. This group was established as a regular permanent organization, the El Paso-Juarez Military Civilian Health Council.

The group has worked out a system for the exchange of contact reporting and investigation. Current methods of treatment and diagnosis are discussed regularly. Meetings are held monthly and problems of the previous month are discussed and solutions sought.

A seminar for interviewer investigators was held in Juarez in 1960.

It is hoped that similar groups will be established in all twin cities along the border and that their work will expand to cover all facets of public health.

SOMMAIRE

Les problèmes sanitaires d'une communauté quelconque influencent et affectent désormais dans une large mesure toutes les autres communautés du monde.

Un touriste atteint d'une maladie contagieuse est susceptible d'y exposer des individus d'autres villes, d'autres pays et d'autres continents. Les enquêtes épidémiologiques sur ces individus ont donc une grande importance.

L'épidémiologie est la clef de la lutte contre la syphilis. Quand le problème s'étend à des zones intercontinentales, il est aggravé par les difficultés linguistiques et l'absence de moyens d'étude épidémiologique.

L'expérience que nous avons acquise dans le programme coopératif de lutte contre les maladies vénériennes dans les régions de El Paso (Texas) et de Ciudad Juarez (Mexique) pourra peut-être être mise a profit dans un programme épidémiologique international.

En 1942, une réunion fut convoquée entre les organismes intéressés de santé, de bienfaisance et d'application des lois, ainsi que les installations militaires voisines, dans le but d'améliorer la lutte contre les maladies vénériennes. Le groupe ainsi formé fut constitué en un organisme régulier permanent, le Conseil Militaire et Civil d'Hygiène d'El Paso-Juarez.

Ce groupe a mis au point un système d'échange pour la déclaration des contacts et les enquêtes. Les méthodes de traitement et de diagnostic actuellement employées y font l'objet de discussions régulières.

Un colloque d'enquêteurs chargés des entrevues s'est tenu à Juarez en 1960.

On espère que des groupes analogues se constitueront dans toutes les villes jumelles le long de la frontière et que leur oeuvre s'étendra à tous les aspects de la santé publique.

RESUMEN

Los problemas de salud de cualquier localidad hoy día afectan otras localidades.

Un turista que padezca de una enfermedad transmisible puede contagiar personas en distintas ciudades, países y continentes. La investigación epidemiológica de tales personas se considera de suma importancia.

La epidemiología es la clave para controlar la sífilis. Cuando se encuentran afectadas zonas internacionales el problema se extiende hasta incluir dificultades de idioma y escasez de medios epidemiológicos.

La experiencia que hemos tenido en zonas de El Paso, Texas y Ciudad Juárez, México, relacionada con un programa cooperativo de control de las enfermedades venéreas, bien puede contribuir a la ejecución de un programa de alcance epidemiológico internacional.

A fin de mejorar los medios para el control de las enfermedades venéreas se celebró en 1942 una reunión en la cual participaron entidades de salud y asistencia social, agencias encargadas del cumplimiento de las leyes y los servicios militares de los alrededores. Este grupo se constituyó en una organización permanente: El Consejo de Salud Militar-Civil de El Paso-Juárez.

El grupo ha establecido un sistema por medio del cual se intercambia la notificación de casos e investigaciones. Con regularidad se discuten los métodos actuales de diagnóstico.

En 1960 se celebró en Juárez un seminario para investigadores que efectúan entrevistas.

Es de esperar que se establezcan grupos similares en todos los pares de ciudades fronterizas y que su labor se extienda hasta cubrir todos los aspectos de la salud pública.

IN THE PAST 20 to 30 years we have been constantly hearing about the public health aspects of the increase in international travel as a result of the modern achievements in the field of transportation, particularly, aviation. Disease can no longer be described as being peculiar to one locality in contrast to another. The health problems of any community in the world, now greatly influence and affect all other communities. International boundaries are geographic and physical but the spirochete does not respect these borders.

Border areas, regardless of their locations, are always extremely attractive to tourists. One of the psychological aspects of tourism is the urge for adventure and the unusual. There is a certain amount of abandon which is believed to lead to a higher index of promiscuity than would be expected from the same group in its home locale. A tourist infected with a communicable disease might expose individuals of different cities, counties and even continents. The magnitude of the problems of epidemiological investigation of such individuals becomes self evident.

Problems of Border Epidemiology

Epidemiology is a keynote in the control of syphilis. The clinical aspects of diagnosis and treatment are well established and offer no problems. Epidemiology is one great link in the chain of control that must be more thoroughly developed. This is true even at relatively uncomplicated local, state and national levels. When international and intercontinental areas become involved, the problem is increased manifold. The problems of language difficulties, the time factors in mail communication, the absence of established epidemiologic facilities or personnel in the different localities, etc., all tend to complicate the picture even more.

In the El Paso, Texas, U.S.A., and Ciudad Juarez, Mexico, areas we have had 20 years of experience in a co-operative venereal disease control program. Our experience may contribute in some small way to a co-operative international and world wide epidemiological program.

The United States-Mexico border is 1,452 miles in length and stretches from Brownsville and Matamoros on the Gulf of Mexico, to San Diego and Tijuana on the Pacific coast. In 1957 there were over 100,000,000 crossings along the border. It is estimated that in 1962 the number will exceed 125,000,000. In the Juarez-El Paso area alone, in the past month, there were over two and a half million crossings with an estimated 30,000,000 for the year. This is one of the most traversed crossing points in the entire world.

Politically, the twin cities across the border are different, but from a geographic and public health point of view, they are in reality one. The same trolley cars and busses pass through each city in regular circuit. Similar twin cities exist all along the border. In addition to those already mentioned are: Laredo and Nuevo Laredo; Eagle Pass and Piedras Negras; Nogales, Arizona and Nogales, Mexico; and Calexico, California and Mexicali, Mexico.

El Paso-Juarez Health Council

In 1942, during World War II, many of the difficulties mentioned above were encountered. To help improve the control of venereal disease a meeting was called between the interested health, welfare and law enforcement agencies from both sides of the border as well as the surrounding nearby military installations.

Many of the problems which previously were unapproachable were solved to the satisfaction of all concerned. Since the original meeting met with such great success and enthusiasm, a motion was made to establish this group as a regular permanent organization. This was the birth of the present El Paso-Juarez Military-Civilian Health Council.

The name is one of the many which has been allocated to our group. Actually, there has never been any official designation, since this is not an official agency, but rather a group of interested and cooperative agencies working together in the interest of venereal disease control. There are no offices and no charter, etc. Each group, that is, the City of Juarez, the local military installations, and the City of El Paso, acts as host on a monthly rotating basis, and the leader from each particular area "presides" at that monthly session. The camaraderie, fellowship, and mutual understanding that has developed is one of the outstanding achievements of the group.

As a result of the efforts of this group a system for the exchange of contact reporting and investigation has been worked out which has aided greatly in the control program. Epidemiologic forms both in English and Spanish are available. As an expedient measure, the reports are hand carried to Juarez almost daily where the personal relationships bring the groups even closer together.

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Often, where personal identification would be more efficient, the individuals would be brought across the border to point out the places of encounter, exposure, etc., as well as to identify photos of possible suspects. The reports are completed and returned to the place of origin through the same channels from which they originated.

Each month a statistical analysis is made of the contacts reported to cases of venereal disease. The places of encounter and exposure from all the localities represented are scrutinized. Those clubs, bars, etc., which are named frequently are brought to the attention of the health authorities and law enforcement agencies for appropriate action. Since these agencies are represented on the committee, they receive the information first hand and there is no delay in the institution of corrective measures.

Through the cooperation of the Pan-American Health Organization which is part of the El Paso, Texas field office of the World Health Organization, the various agencies which had been reporting contacts in the El Paso-Juarez area, were notified as to the proper office and address for mailing contact reports.

In addition to the international reporting, there has been developed a system of reporting between the various health jurisdictions within the City of Juarez itself, namely, the health agencies of the Federal government, the municipal health department, and the Social Security Program.

Current methods of treatment and diagnosis are discussed regularly so that the medical personnel are familiar with the most modern methods. Research projects such as penicillin resistance of the gonococcus, prophylactic administration of penicillin for the prevention of venereal disease, the use of drugs other than penicillin in the treatment of syphilis, have been undertaken by the group.

Investigators' Seminar

One of the major accomplishments of this group was a seminar for interviewer-investigators held in Juarez, Mexico in 1960, with instructors from both the United States and Mexico. There were approximately 50 students, about half from each country and included military as well as civilian personnel. In this manner a large number of informed personnel were made available for epidemiological work in an area which needed them badly. Finances, travel, language problems, etc., would have made it impossible to train these people at the regularly established schools for this purpose.

This is merely one example of how cooperative groups can work out their problems. It is anticipated that the work of these groups will expand to cover all facets of public health, such as tuberculosis, rabies, diarrhea and enteritis, etc. It is the hope of those interested in border health problems that similar groups will be inspired and established in all twin cities along the border.

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Effect of Quarantine Regulations on Venereal Disease Transmission

W. G. SIMPSON, M.D.

ABSTRACT

The effect of travel, particularly maritime, on the spread of infectious diseases has been recognized for centuries and has led to such preventive measures as quarantine.

Enactment and continuous practice of quarantine laws in the U.S. date from 1878.

As regards V.D., the Health Organization of the League of Nations was concerned in the early part of this century with diagnosis and therapy rather than with quarantine and prevention.

From 1948 the WHO has tackled the problem of worldwide V.D. increase by giving urgent priority to mass treatment and control in the underdeveloped countries and by preparing for large-scale control programs.

U.S. quarantine regulations prescribe that medical officers suspecting an arrival of being a carrier of any of 20 communicable diseases, including five venereal diseases, may place him in isolation or under surveillance. Infectious syphilis or other V.D.s require adequate treatment before the party concerned is allowed entry into the country.

However, effective disease prevention and control depend on the availability of adequate facilities for diagnosis and treatment, and extensive and expensive quarantine-type measures are useless.

SOMMAIRE

L'effet des voyages, surtout des voyages par mer, sur la diffusion des maladies infectieuses a été reconnu depuis des siècles et a donné lieu à des mesures de prévention telles que la quarantaine.

La promulgation et l'application permanente de lois sur la quarantaine aux E. U. remontent à 1878.

En ce qui concerne les maladies vénériennes, l'Organisation de la santé de la Société des nations, pendant la première partie de notre siècle, se préoccupait de la diagnostique et de la thérapeutique plutôt que de mesures de quarantaine et de prévention.

A partir de 1948, l'OMS a attaqué le problème de l'accroissement mondial des maladies vénériennes en accordant une priorité urgente au traitement et au contrôle en masse dans les pays sous-développés et en faisant des préparatifs pour des programmes de contrôle de grande envergure.

Les règlements de quaranlaine américains stipulent que les officiers de santé soupçonnant un arrivant d'être porteur d'une des 20 maladies communicables, y compris les cinq maladies vénériennes, peuvent l'isoler ou l'astreindre à la surveillance. La syphilis infectieuse et les autres maladies vénériennes exigent un traitement efficace avant que l'intéressé puisse être admis dans le pays.

Cependant, la prévention et le contrôle efficaces de la maladie dépendent de la disponibilité de matériel suffisant à la diagnostique et au traitement, et les mesures vastes et coûteuses du genre quarantaine sont inutiles.

RESUMEN

Hace siglos que se viene aceptando el hecho de que los viajes, especialmente los marítimos, contribuyen a la propagación de las enfermedades infecciosas tanto así que para hacerle frente al problema se han establecido medidas preventivas como la cuarentena.

En los Estados Unidos, la promulgación y la práctica continua de disposiciones legales relativas a la cuarentena datan de 1878.

Por lo que respecta a las enfermedades venéreas, La Organización de la Salud de la Liga de las Naciones se hizo cargo, a comienzos del presente siglo, del diagnóstico y de la terapia más que de la cuarentena y prevención.

Desde 1948 la OMS le está haciendo frente al problema del aumento de las enfermedades venéreas en todo el mundo prestando urgente prioridad al tratamiento en masa y control en los países poco desarrollados y preparándose a ejecutar programas de control en grande escala.

Los reglamentos de cuarentena en los Estados Unidos disponen que los funcionarios de salubridad que sospechen que una persona que llega a un puerto es portadora de cualquiera de las 20 enfermedades transmisibles, inclusive las 5 enfermedades venéreas, pueden someter el viajero a aislamiento o a vigilancia. La persona en cuestión debe ser sometida a un tratamiento adecuado contra la sífilis infecciosa o contra cualquier otra de las enfermedades venéreas antes de que pueda obtener el permiso de entrada al país.

Sin embargo, para lograr el control y la prevención efectivos de la enfermedad es necesario contar con instalaciones donde se pueda realizar el diagnóstico y tratamiento adecuados, sin estas las medidas prolongadas y costosas de cuarentena son de poco valor.

THE EFFECT OF travel on the spread of contagious diseases has been recognized for centuries. Historically, maritime travel was principally involved with various drastic measures designed to prevent the introduction of plague and other pestilences. One such procedure in medieval times at the Adriatic port of Ragusa led to the development of the word *quarantine*—this referring to the 40 days' isolation (or *quarantina*) which the incoming plague suspects were required to spend at the landing station.

Even in the 18th century ships from plague infected areas were burned by the sanitary authorities. Although somewhat vague in detail, the earlier practices of quarantine in Europe were directed against bubonic plague, leprosy, and syphilis.

In the American colonies, Massachusetts had the earliest quarantine restrictions in 1647 followed by Pennsylvania in 1700. Smallpox and yellow fever were the diseases principally feared and restricted.

Although there were various earlier quarantine acts from 1794 to 1799, the enactment and continuous practice of quarantine laws in the U.S.A. did not develop until 1878. At that time yellow fever, smallpox, and cholera were the diseases of principal concern. It is interesting to note that the present decade finds many of our nations still very much involved with at least two of these three diseases. The recent episode of rapid travel of a smallpox case to Canada from Brazil by way of New York City, and the arrival of a smallpox case in London aboard a world cruise ship serve to alert the world community of the importance of quarantine and other preventive public health practices.

Thus the role of the traveler is still large in the international transmission of diseases. During the last century the treponematoses and other venereal diseases have not been prominent in discussions of quarantinable diseases due principally to the lack of rapid mortality.

As diagnostic and treatment methods were developed in this century, the emphasis on social aspects of the venereal diseases changed to health emphasis. Thus the Health Organization of the League of Nations was concerned in the early twentieth century with standards of diagnostic tests and drugs for therapy, rather than quarantine and preventive practices. In the same pattern the 1924 Brussels Agreement concerned itself with provision of available facilities for the treatment of seafarers.

From 1948, the World Health Organization was engulfed by the problems of postwar venereal disease increase and the worldwide scope of the treponematoses. Buoyed by the hope of international action, WHO was swept by the tides of the urgent priorities of mass treatment and control in the under developed countries and training and equipping for control programs.

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Quarantine Regulations

The Quarantine Regulations of the U.S.A. are the minimum measures for the protection of the United States against the introduction and spread of the six quarantinable and other important communicable diseases. The usual five venereal diseases are included under the term *communicable diseases* which includes 15 other diseases.

The Regulations provide that "whenever the medical officer in charge has reason to believe that any arriving person is suffering or has been exposed to infection from any of the *communicable diseases* listed, he may place such person in isolation or under surveillance and may disinfect or disinfest his person, clothing, or baggage as he considers necessary to prevent the introduction, transmission, or spread of such communicable disease."

The medical officer in charge of quarantine is responsible for determining whether the measure prescribed should be applied. However, except for unusual circumstances considered to constitute a grave danger to public health, the Regulations provide that a ship or aircraft that is *not* infected or suspected of being infected with one of the *six quarantinable diseases* shall not, because of any other disease, be prevented from unloading or loading cargo, etc.

Aircraft and ships on arrival must deliver a general declaration as to health conditions and illness abroad to the quarantine officer.

The 10th WHO assembly on the question of the applicability of the International Sanitary Regulations to diseases other than the six quarantinable diseases approved the following opinions of the Committee on International Quarantine, "that the *Int'l Sanitary Regulations* as in the case of the *Int'l Sanitary Conventions* refer *expressly* to the six quarantinable diseases and *limit* the sanitary measures to be taken in respect of other infectious diseases."

The Regulations for Medical Examination of Aliens and related procedures under immigration laws are more applicable to control of venereal disease transmission than the Quarantine Regulations. For example, under these regulations infectious syphilis is certified as a Class A condition which requires adequate treatment before entry into the country. Gonorrhea and the other infectious stage venereal diseases are also so certified. The same regulations apply to alien seamen. With modern therapy such cases can be treated and returned to duty as a rule without handicap or hardship to the ship concerned.

In the medical examination of aliens, specific physical inspection of alien seamen for venereal disease was long a routine practice. In 1960 quarantine officers were given discretion as to application of this inspection with the provision that such medical inspection of alien seamen shall no longer *routinely* include specific physical inspection for venereal disease.

During two three-month periods of this year one of the principal U.S. quarantine stations conducted a study to learn whether routine inspection of alien crew members for venereal disease compared to simple questioning of crew members as to venereal disease signs and symptoms resulted in any differences as to discovery rates in two groups of approximately 24,000 each.

In the group having routine physical inspection 14 cases of venereal disease were diagnosed for a rate of 0.6 per 1000; for the comparable group with no inspection but simple questioning as to V.D. there were 10 cases diagnosed for a rate of 0.4 per 1000. During each three-month period there were 3 cases of syphilis in each group.

The difference in total rates in the two groups studied was not statistically significant.

During the study periods the cases in crew members reported by private physicians in the area were studied. These totaled 0.1 per 1000 alien crew members and the majority of these were new cases occurring during the ship's stay in port (principally gonorrhea) or older syphilis cases discovered by serology only and previously treated. In only one instance was there evidence that a lesion was present at the time of questioning that could have been detected by inspection.

The annual volume of alien crew personnel seen at U.S. entry points totaled one and one-half million for fiscal year 1962. One quarter million of these were airline personnel. The overall rate for V.D. seen was 0.3 case per 1000 crew members.

Conclusion

Effective venereal disease prevention and control depend on the availability of adequate facilities for diagnosis and treatment. Restrictive practices, needless isolation, and delay have no place in modern international transportation programs if cooperative and effective disease control programs are to be obtained. A certain amount of V.D. will occur among seafarers and other travelers. This may well become of increased importance in times of unstable social conditions. Its relative importance under normal conditions should be recognized.

The treponema and gonococcus are quite ubiquitous at present. Thus extensive and expensive quarantine type measures would be ill-conceived and useless. Routine surveillance, adequate diagnostic and treatment facilities and selected application of epidemiologic procedures on infectious cases can be expected to have the maximum effect on venereal disease transmission.

Interrelationship of Syphilis Incidence and Maritime Activity

EDUARD HUBERT HERMANS, M.D.

ABSTRACT

The venereal disease problem among seafarers is now of relative less importance than previously. A U.S. Public Health Service investigation showed, however, that a random group of 80 seafarers admitted having sexual intercourse with 615 persons in 112 ports in 45 different countries.

It has been found that the incidence of venereal diseases among seamen is closely related to the living and working conditions of the seamen. If offered education and recreation on a higher level, the promiscuity of the seamen diminishes considerably.

More men than women have been treated for syphilis during the past few years, and among the men the homosexual factor is becoming more dominant. Among seafarers homosexuality is not more spread than among the civil population.

With the apparently simplified therapy now available probably more venereal diseases are treated afloat than ashore.

The study group on the Brussels Agreement held in 1956 advised that a smear should be taken of any urethral discharge before treatment; genital sores should be treated with sulfonamides and no antibiotic given if the next port of call is within three weeks away. As a rule the seaman who has a genital sore will insist upon being treated with penicillin. Sometimes the dosage of penicillin on board is dangerously low; other times exaggeratedly high.

The treatment centers in the ports, set up by the Convention of Brussels, are of great importance.

Very good work (therapy, seamen's welfare) has been accomplished with regard to venereal diseases among seafarers.

SOMMAIRE

Le problème des maladies vénériennes chez les marins est devenu relativement moins sérieux, qu'il était avant. Toutefois, une enquête du Service de la Santé Publique des Etats-Unis a révélé qu'un groupe pris au hasard de 80 marins a reconnu avoir eu des rapports sexuels avec 615 personnes dans 112 ports de 45 pays differents.

On s'est aperçu que la fréquence des maladies vénériennes parmi les marins est étroitement liée a leurs conditions de vie et de travail. Si on leur offre des programmes éducatifs et récréatifs d'un niveau relativement élevé, la promiscuité des marins diminue considérablement.

C'est un fait reconnu qu'un plus grand nombre d'hommes que de femmes ont été traités pour la syphilis au cours des dernières années, et que parmi les hommes le facteur homosexuel est en train de devenir de plus en plus dominant. On peut dire que l'homosexualité n'est pas plus repandu chez les marins que dans la société civile.

Grâce à la thérapie soit disant simplifiée qui est maintenant possible, il est aussi probable que le plus grand nombre des maladies vénériennes soit maintenant traité en mer au lieu d'être traité a terre.

Le groupe d'étude de l'Accord de Bruxelles qui s'est réuni en 1956 recommandé de prendre un frottis de toute suppuration urétrale avant le traitement. Toute plaie génitale doit être soignée aux sulfamides et aucun antibiotique ne doit être administré si la prochaine escale est a moins de trois semaines. En général, le marin qui a une plaie génitale insiste pour être traité à la pénicilline. Quelquefois la quantité de pénicilline administrée à bord est dangereusement faible; d'autres fois, beaucoup trop élevée.

Les centres de traitement dans les ports, établis par la convention de Bruxelles, sont d'une grande importance.

On peut dire qu'on a accompli un trés bon travail aussi bien du coté de la thérapie, que du coté du bien-être parmi les marins en ce qui concerne les maladies vénériennes.

RESUMEN

En la actualidad la magnitud del problema que presentan las enfermedades venéreas entre los marinos es mucho menor ahora que antes. Sin embargo, una investigación realizada por el Servicio de Salud Pública de los Estados Unidos reveló que un grupo de 80 marinos escogido al azar admitió haber mantenido relaciones sexuales con 615 personas en 112 puertos en 45 paises diferentes.

Se ha puesto de manifiesto que la incidencia de las enfermedades venéreas entre los marinos guarda estrecha relación con las condiciones de vida y de trabajo de los mismos. Cuando se les brindan oportunidades edueativas y recreativas de nivel más alto, la promiscuidad entre los marinos registra un deseenso sensible.

En los últimos años se han tratado más casos de sífilis en hombres que en mujeres, y que entre los primeros el homosexualismo está adquiriendo mayor importancia. La homosexualidad está tan difiendida entre los marinos como en la población civil.

Gracias a los métodos terapéuticos de simplicidad aparente que se dispone en la actualidad, es probable que se traten más casos de sífilis a bordo que en tierra.

El seminario sobre el Convenio de Bruselas que se celebró en 1956 aconsejó tomar una muestra de orina antes de realizar el tratamiento; las llagas genitales deben curarse con sulfamidas y no se deben recetar antibióticos si la próxima escala se hará en menos de tres semanas. Por lo general, los marinos que sufren de llagas genitales insisten en recibir un tratamiento a base de penicilina. En ocasiones, la dosis de penicilina que se proporciona bordo es peligrosamente baja; otras veces, exageradamente alta.

Los centros de tratamiento ubicados en los puertos de conformidad con el Convenio de Bruselas son sumamente importantes.

Se ha logrado desarrollar una gran labor la terapia como bien estar de los marinos en el campo de las enfermedades venéreas.

THE MERCHANT SEAMAN is a traveller par excellence and few industries have such a profound effect on the entire life pattern of their workers as has the merchant marine. By reason of his calling the seaman is more exposed to temptation than those of other occupations. Though it cannot be denied that the venereal disease problem continues to exist among seafarers, it is now of lesser importance, or rather—of lesser relative importance—than before.

Character of Present-Day Seamen

It is remarkable that about many questions concerning the living of the seaman, hardly anything is found in sociological textbooks and essays, and I think that the Studygroups of the Rotterdam Port Demonstration Centre have in this respect accomplished work of great value. Persons, not familiar with this problem, express many contradictory ideas on the seaman. On the one hand they like to see him as an open-hearted honest person; on the other hand he is supposed to be a coarse drunkard, who is only looking for recreation in seaman's quarters with bad reputation and who has to be avoided by the self-respecting civilian.

It might well be stated here, that the classic image of the seaman, a kind of pirate, an outcast, having his place outside of society and addicted to alcohol and women, for which to satisfy himself he has to go to the prostitutes, does practically speaking no longer exist in this form.

Generally speaking, the seaman has nowadays reached a better level and even is not any more a rover, but an artisan who fulfills in more or less a prosaic way his work and who desires a certain degree of certainty of existence, reasonable working conditions, provisions in case of sickness or accident and a sufficient maintenance for his wife and children during his absence.

Of course we should not give the impression, that the seaman now has turned into a plaster saint. A U.S. Public Health Service investigation (Giacomo and Rion, J. Ven. Dis. Inf., 29: 371–373, 1948) brought out that in 80 unselected seafarers, successively interviewed sexual intercourse was admitted with 615 persons in 112 ports in 45 different countries.

And it is not correct either, that the seaman, who so long a time is deprived of a normal sexual intercourse, finally comes to building up some kind of happiness elsewhere. It was only too well known that from the Dutch crew on board of ships going to Indonesia many a seaman visited one or more prostitutes in the very first Mediterranean port they berthed and they had left their homes only just a few days before.

But we have come to learn, that the frequency of venereal diseases among seamen is closely connected with the living and working conditions of the seamen. It goes for sure that the promiscuity of the seamen diminishes considerably, if we have to offer to the seamen something more important and of a higher level as regards recreation and education.

Effect of Social Changes on Sexual Promiscuity

Moreover many changes, which have taken place in the civil society have asserted their impact. The feeling of solidarity, based upon a common inferiority complex, which before very often arose in the relation between the seaman and the prostitute, especially under the influence of alcohol, has now become a less occurring phenomenon. Also the number of infections with seamen is nowadays not as it was before—90% due to the prostitutes. The ratio now is about 50/50 between the prostitutes and the "amatrice."

If in earlier days the seaman suffered much from the offer of female-amatrices in a few ports only of Eastern Europe, we now see that in quite a large part of the free world, free sexual interconrse has so much increased that the seaman really is not any more committed to prostitutes but indeed has a lot of trouble to keep free from the amatrices in the streets and in the neighborhood of the seaman's homes.

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Only some time ago a foreign sailor told me that he had not the least difficulties in finding different girls with whom he could have sexual intercourse without any financial consideration, for every evening during his fortnight's stay in Rotterdam. And this man really had not the grand manners of a Casanova.

One might well say, that we have too much been obsessed by the problem of the prostitute and that the real attention should stay fixed upon the promiscuity of man as well as of woman, prostitutes and amatrices, as promiscuity is the determining factor for demand as well as for supply.

It is an established fact in many countries that among the sick, who were under treatment during the last years for syphilis, there were much more men than women and that with the men the homosexual factor is playing more and more a dominant part. Of course homosexuality occurs also among the community of men on board, yet less than could be expected. Less favorable, however, is this point on board of passenger-ships, where the homosexual factor is to be found mainly among the servants, the staff of hairdressers and others.

Treatment of Venereal Diseases on Board Ships

As regards the treatment of venereal diseases among the seamen we can state that important changes have been carried out. On board of all ships, indeed even when no doctor is present, there exists an increasing tendency to treat suspected venereal diseases, and we might well say, that with the simplified therapy now available probably more venereal diseases are treated afloat than ashore.

The Studygroup on the Brussels Agreement held in Oslo in 1956 gave very valuable advice as regards the treatment on board ships, where no doctor is available. A smear should be taken of any urethral discharge before treatment and genital sores should first be treated with sulfonamides and no antibiotic given if the next port of call can be reached within three weeks.

The last item remains very often a pious hope and as a rule the seaman who has a genital sore will insist upon being treated without any delay with the so popular penicillin. The treatment with penicillin on board varies very often: it sometimes is very dangerously on the low side and sometimes exaggeratingly high. Some time ago we saw a seaman, who had been treated for a nondiagnosed superficial defect at the penis with 20 million units of penicillin.

Treatment Centres in Ports

Of course, the treatment centres for the seamen in the ports, established on ground of the Convention of Brussels, keep their full value and for these centres a regular propaganda should be made. An important point is, that the seaman who is treated on board of his ship for a disease of the genitals should anyhow be directed to a centre in the next port of call; but very often a seaman will not do so because the symptoms have in the meantime disappeared and in this there is a great danger. If he does visit the centre and there is no more the possibility to diagnose a syphilis infection in development, then a treatment should yet be given as if indeed a syphilis infection exists.

The use of the personal card in which the patient is identified by number only and not by name is an important part of the Brussels Agreement and it is not desirable that the centres for sailors, neither for foreign seafarers nor for seamen of the nationality, be absorbed by the general or special health insurance systems of the country.

The centres are also of great value for another point which is seldom mentioned. Every year about 800 seamen of whom it is stated, that they are not sick present themselves in Rotterdam for examination on venereal diseases, mainly syphilis. From the great number of visitors coming for this aim we see that the seaman shows a need to be examined once in a while at a reliable address.

I myself consider those centres of great importance, also as regards to the still practised quackery in many a port and, though it is a pity to say, in respect to a few not too reliable port doctors, who do still exist here and there.

May I point out to you that in many ports the seaman may still encounter difficulties in looking for medical assistance of any kind and therefore we should stress the importance of creating in ports maritime medical centres, accessible to seafarers of all nationalities.

Allow me to conclude by stating that as regards the seamen and with it the care for health, especially in concern of the venereal diseases and next to this for the welfare in general, very good work has been accomplished, which did not fail to bear good fruits.

Effects of Population Concentration on The Spread of Syphilis: Military

ADAM J. RAPALSKI, M.D.

ABSTRACT

Armies of all lands and at every epoch, including the U.S. Army today, have been accused of substantially helping to spread V.D., especially syphilis.

A closer look at this charge shows that civilian communities are mainly responsible for the spread of V.D. in the army.

Significant incidence increase does not occur in the army during mobilization nor in periods of combat, but in the immediate postwar period.

Legislative action imposing penalties in the army for contracting V.D. does not decrease incidence; on the contrary, by encouraging concealment, it fosters its spread.

Gonorrhea and other V.D.s have a much higher incidence than syphilis in the army (currently one case of syphilis for about 37 cases of other V.D.s, mainly gonorrhea).

Contrary to the civilian experience, the incidence of syphilis in the army continues to decrease.

The rates of V.D. in general and syphilis in particular are higher among U.S. troops stationed abroad than with those stationed in the U.S.

SOMMAIRE

Les armées de tous les pays et à toutes les époques de l'histoire, y compris l'Armée américaine de nos jours, ont été accusées de contribuer en large mesure à répandre les maladies vénériennes, surtout la syphilis.

En examinant cette accusation de plus près, on constate que c'est les agglomérations civiles qui sont surtout responsables de la diffusion des maladies vénériennes dans l'armée.

Une augmentation sensible du taux d'incidence de ces maladies ne se produit pas dans l'armée pendant la période de mobilisation, ni au cours des opérations belliqueuses, mais pendant l'après-guerre immédiat.

Une législation dans le but d'infliger des punitions dans l'armée à ceux devenus infectés de maladie vénérienne, n'a pas eu pour résultat de réduire l'incidence; bien au contraire, en encourageant la dissimulation, de tels règlements ont stimulé la diffusion de la maladie.

La gonorrhée et les autres maladies vénériennes ont manifesté un taux d'incidence bien plus élevé que celui de la syphilis dans l'armée (actuellement, un seul cas de syphilis pour quelques 37 cas d'autres maladies vénériennes, principalement la gonorrhée).

Au contraire de l'expérience dans le secteur civil, l'incidence de la syphilis dans l'armée va en diminuant.

Les taux d'incidence des maladies vénériennes en général, et de la syphilis en particulier, sont plus élevés dans le cas de troupes américaines stationnées à l'étranger que pour celles affectées au service métropolitain.

RESUMEN

Ejércitos de todos los países y en todas las épocas, incluyendo el ejército de los E.U. hoy día, han sido acusados de ayudar substancialmente a propagar la enfermedad venérea, especialmente la sífilis.

Una mirada más detenida a esta acusación muestra que las comunidades civiles son principalmente responsables de la propagación de la enfermedad venérea en el ejército.

No ocurre ningún aumento significativo en incidencia en el ejército durante la mobilización ni en periodos de combate, pero sí en el período inmediato de la postguerra.

Acción legislativa imponiendo penalidades en el ejército por contraer una enfermedad venérea no reduce la incidencia; al contrario, al alentar encubrimiento, fomenta la propagación.

Gonorrea y otras enfermedades venéreas tienen una incidencia mucho más alta que sífilis en el ejército (en el presente un caso de sífilis por aproximadamente 37 casos de otras enfermedades venéreas, principalmente gonorrea).

Contrario a la situación civil, la incidencia de sífilis en el ejército continúa disminuyendo.

Las proporciones de enfermedad venérea en general y sífilis en particular son más altas entre las tropas de los E.U. estacionadas en el extranjero que con aquellas estacionadas en los E.U.

HISTORICALLY, armies of all civilizations have been accused of seriously contributing to the spread of venereal disease and of syphilis in particular. The United States Army has not escaped this general popular indictment. The general term "military," of course, includes forces other than the Army. I cannot speak with any authority for these other forces: the Navy, the Marines or the Air Force. But, since a significant percentage of the United States "military" population is the Army, the observations to be made undoubtedly will apply, with minor variations, to these other components of the "military."

Fallacies in Past Indictments of Armies

There is no doubt that by the very nature of the composition of armies: the young, healthier, vigorous, sexually mature and, therefore, sexually more active segments of the male population, they have contributed in the past to the spread of venereal diseases, including syphilis. But there are several serious fallacies in the popular indictment of armies, particularly with respect to the spread of syphilis. One of these is: that no sooner does an individual don a military uniform he becomes a serious menace to all in the noninfected segment of the civilian community in which he struts. Those of us who have studied this problem seriously, take exception to this indictment. On the contrary, when we begin to study the mores, ethnic groups, and cultural patterns of specific socio-economic groups involved, we can support an opposite indictment, which is: Specific civilian communities have been and mainly are responsible for the spread of venereal diseases in the United States Army. The dual mores and their attending cultural patterns, the socio-economic conditions, the apathy, and, more significantly, the condonation by the citizens of these communities of the known contributing causes all have been and continue to be salient causes of the military venereal disease problem. This has become more evident to us as our population base has changed.

These changes occurred during World War II, and have been accelerated more recently with the advent of increasingly sophisticated systems, which demand and place the burden of military service in our democracy on the educated and educatable segments of the male population. Furthermore, discipline and morals in this qualitatively improved group are better, contrary to popular belief. Psychiatrists and social scientists can attest to this. Recruits and "draftees" acceptable for military service today come not only from a different segment of the nation's manpower pool but also are quantitatively more receptive to the concepts of cause and effect relative to their individual well-being. In the light of this and simultaneously, as our military medical professional level of available acumen and competence to study epidemiological aspects, diagnose and treat these diseases have increased, we in the Army have reason not only to be concerned with the immediate problems of control, but of the serious long term effects of venereal disease, including syphilis, in this select group of our society.

V.D. Incidence Experience

If we look at the record, Figure 1, we can readily visualize in retrospect what impact sudden concentrations of population, such as occur during mobilization, have had on the spread of venereal diseases. We do not have time to discuss the many interesting and significant facts compressed into this picture of the Army's experience in the past 70 years. Two significant features must be commented on, however. The first is that: Significant increased incidence does *not* take place during mobilization, nor in the periods of combat, but in the immediate post-war period. (Note World War I, World War II and Korean conflict periods.) The second is that: Legislative action imposing punishment and penalties for contracting venereal diseases does not decrease incidence, but results in concealment and fosters the spread of disease. With the repeal of the Act of Congress of 1926, on which punishment of individuals who contracted venereal disease was based, in late 1944, and the subsequent modifications of policy with respect to interpretation of what constituted individual misconduct (which had been in effect since 1912), there was a sudden apparent increase in incidence of venereal disease. Although data indicates that a portion of this increase is real, we also have data which supports the contention that a significant segment of this increase was artificial, since the reasons for concealment, with resort to treatment by civilian physicians or self-treatment, were removed.

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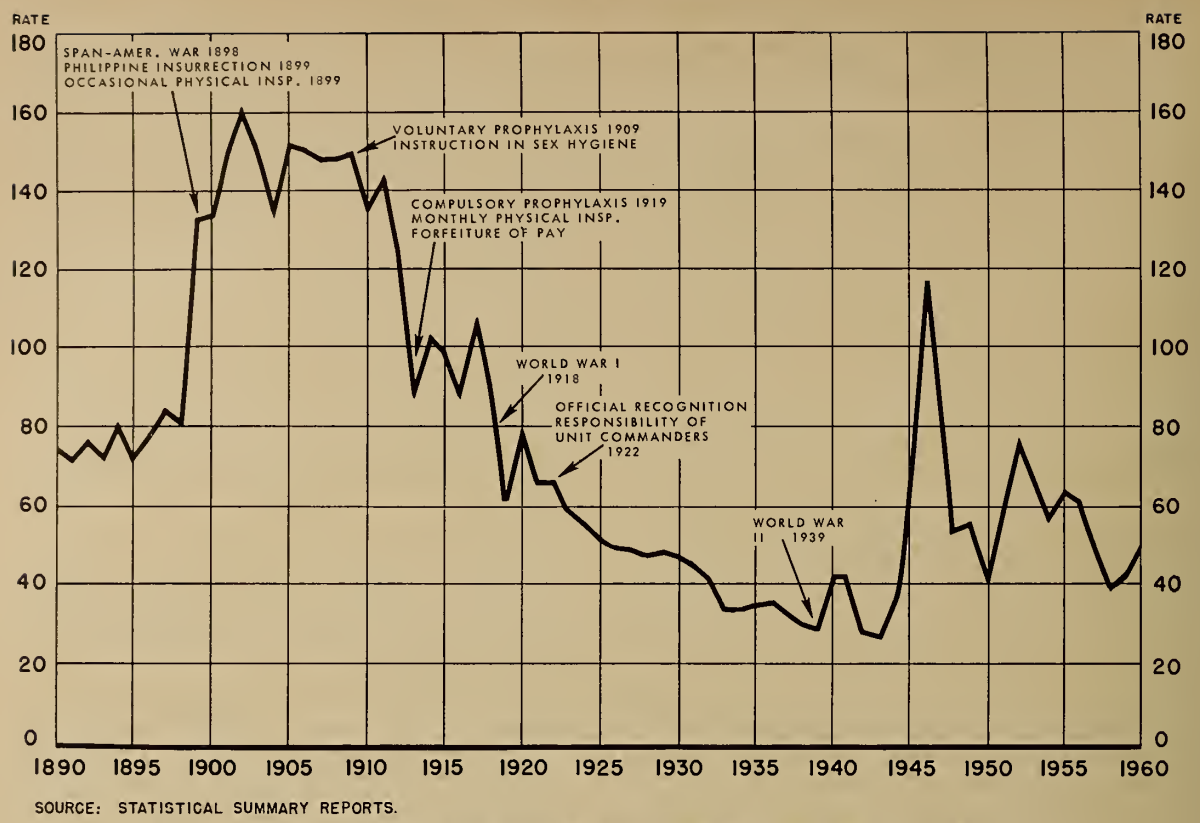

SOURCE: STATISTICAL SUMMARY REPORTS.

Figure 1. Total V.D. (new, not EPTE) among AD Army personnel—worldwide by year, 1890–1960

Incidence of Syphilis

With respect to the specific disease, syphilis, which is the concern of this Forum, Figure 2 presents a similar visual picture of the Army's experience with this disease for the past 101 years. It should be pointed out that the data (Table 1) on which this graph, as well as the previous one, is based excludes those cases (EPTE) which had their origin prior to enlistment or entrance on active duty. Your attention is again called to the evidence that significant, increased incidences of syphilis and, therefore, increased impact on spread of the disease, did not occur during the periods of mobilization, nor during combat, but in the post-war periods: after the Civil War (1865), after World War II (1945). On the whole, we feel encouraged with the progress we have made as shown in this graphic demonstration.

When we study our current problems in the Army as a whole (Table 2), we feel more concern about those diseases other than syphilis. Whereas after World War II we were seeing one case of syphilis for roughly every 8 cases of other venereal disease, there has been a steady decline. We now only see one case of syphilis for approximately 37 cases of other venereal disease, the vast majority of these being gonorrhea.

Returning to our indictment that specific civilian communities contribute to our problems, Table 3 shows what the recent experience of the Army in these United States has been. Incidence of syphilis, apparently contrary to the experience of the civilian segments, continues to decrease. The ratio of syphilis to other venereal diseases is almost the same as that observed worldwide. When we look at other cultures, with varying mores, and ethnic groups (Table 4), there are significant variations in incidence, again reinforcing our contention that it is the reservoir of specific disease in specific communities that contributes to incidence of these diseases in the Army. For when we examine similar data for syphilis (Table 5), we find that whereas the highest incidence of all venereal diseases is in troops stationed in Korea, the Ryukyus, and the Caribbean, for syphilis the order is Ryukyus, Caribbean and all other areas. The data for Japan cannot be evaluated, since the numbers both in terms of numbers of cases and average strength for these

Table 1. Data for Figure 2. Incidence of syphilis (New—not EPTE [1]) among Army personnel worldwide, by year 1860–1960

Rates per 1,000 average strength per year

Year	Rate	Year	Rate	Year	Rate	Year	Rate	Year	Rate
1860	71. 32	1880	49. 41	1900	15. 83	1920	13. 92	1940	7. 71
1861	68. 10	1881	47. 67	1901	19. 15	1921	12. 35	1941	5. 93
1862	32. 37	1882	40. 15	1902	22. 37	1922	13. 12	1942	5. 70
1863	23. 24	1883	35. 62	1903	23. 43	1923	13. 67	1943	4. 99
1864	35. 43	1884	29. 87	1904	23. 52	1924	13. 73	1944	5. 22
1865	33. 22	1885	24. 90	1905	24. 80	1925	11. 70	1945	7. 96
1866	68. 12	1886	22. 44	1906	22. 05	1926	11. 91	1946	14. 24
1867	124. 34	1887	23. 15	1907	21. 13	1927	10. 72	1947	15. 35
1868	104. 95	1888	22. 37	1908	19. 53	1928	11. 16	1948	10. 38
1869	97. 04	1889	22. 15	1909	21. 87	1929	11. 55	1949	8. 21
1870	69. 40	1890	19. 77	1910	21. 67	1930	11. 89	1950	4. 41
1871	67. 72	1891	14. 96	1911	35. 25	1931	11. 45	1951	2. 83
1872	60. 35	1892	16. 15	1912	25. 66	1932	11. 89	1952	2. 41
1873	55. 72	1893	13. 80	1913	21. 09	1933	9. 89	1953	1. 84
1874	47. 33	1894	12. 14	1914	21. 47	1934	9. 11	1954	1. 42
1875	60. 06	1895	11. 15	1915	19. 73	1935	7. 82	1955	1. 32
1876	56. 86	1896	10. 99	1916	16. 16	1936	7. 88	1956	1. 63
1877	50. 07	1897	12. 04	1917	15. 18	1937	7. 87	1957	1. 54
1878	47. 73	1898	10. 33	1918	17. 56	1938	7. 95	1958	1. 55
1879	44. 36	1899	13. 98	1919	13. 35	1939	6. 59	1959	1. 20
								1960	1. 16

[1] Does not include cases existing prior to enlistment.

Sources: 1860–1940: The Army Medical Bulletin No. 67, Table 1.
1941–1960: Medical Statistical Summary Reports.

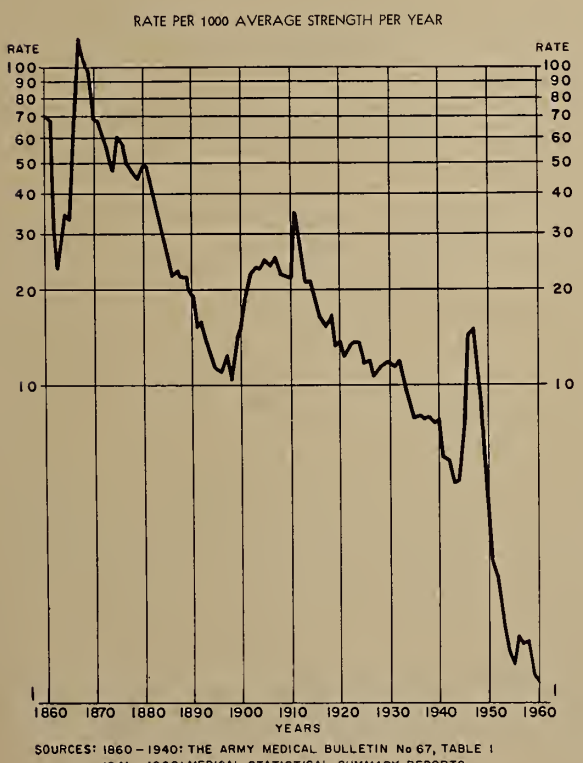

Figure 2. Incidence of syphilis (new, not EPTE) among Army personnel—worldwide by year 1860–1960

Table 2. Incidence rates for venereal diseases (New—not EPTE [1]) total Army (worldwide)

Month	Cases per 1,000 average strength per year [2]			
	Total V.D.		Syphilis	
	1961	1962	1961	1962
January	53. 5	45. 0	1. 2	1. 3
February	48. 6	36. 9	1. 0	1. 5
March	50. 8	37. 5	1. 3	1. 2
April	52. 0	38. 5	1. 5	. 9
May	52. 3	42. 3	1. 3	1. 0
June	53. 6	43. 3	1. 8	. 9
July	55. 7	------	1. 7	------
August	54. 5	------	1. 1	------
September	55. 4	------	1. 6	------
October	49. 3	------	1. 1	------
November	45. 3	------	1. 5	------
December	38. 5	------	1. 0	------
Average	50. 5	40. 9	1. 3	1. 1

[1] Based on cases both excused from duty (admitted to hospital or quarters) and not excused from duty (carded for record only, that is treated as out-patients). Not EPTE: does not include cases Existing Prior To Enlistment.

[2] Statistics for 1962 include only 6 mos.

Table 3. Incidence rates for venereal diseases (New—not EPTE [1]), United States (including Alaska and Hawaii) Army personnel

Month	Cases per 1,000 average strength per year [2]			
	Total V.D.		Syphilis	
	1961	1962	1961	1962
January	25. 2	26. 2	0. 5	0. 7
February	23. 5	20. 9	. 6	1. 0
March	25. 1	22. 0	. 9	. 7
April	25. 7	22. 0	. 9	. 7
May	28. 7	23. 2	. 8	. 7
June	28. 9	24. 0	1. 1	. 6
July	28. 8	------	. 9	------
August	30. 4	------	. 6	------
September	29. 2	------	. 8	------
October	23. 7	------	. 5	------
November	23. 5	------	. 7	------
December	18. 4	------	. 4	------
Average	25. 9	23. 1	. 73	. 73

[1] Based on cases both excused from duty (admitted to hospital or quarters) and not excused from duty (carded for record only; that is, treated as outpatients). Not EPTE: does not include cases Existing Prior to Enlistment.
[2] Statistics for 1962 include only 6 mos.

periods are small, and statistically not significant. The rate of 15.4 for "All Other Areas" in May 1962, is significant in that it is a reflection of our sudden deployment of significant numbers of our troops into still different cultures and mores of Southeast Asia.

Comparing the incidence in the United States with that the Army is experiencing in Europe (Table 6) indicates that although the reservoirs of infection are apparently somewhat higher, there is progress and a slow, if erratic decrease in incidence. On the other hand when similar data is studied for Korea (Table 7), we must come to the conclusion that although the decrease in total venereal diseases is also erratic, there apparently has been a significant decrease in the incidence of syphilis, and therefore of the reservoir in the civilian population, even though this incidence and reservoir have been low as compared to other areas of the world where the Army is deployed.

Summary

In summary: concentrations of military populations can have an effect on the spread of syphilis which effect is particularly significant in the immediate post combat periods, but is not significant during the mobilization and combat periods. The magnitude of the impact of spread is directly related to the magnitude of the reservoir in the civilian community in which the military population finds itself. Although there undoubtedly is an indirect effect of different mores and cultural patterns on such incidence, their significance in the spread of syph-

Table 4. Incidence rates for venereal diseases (New—not EPTE [1]) Army personnel

Total venereal diseases

Month	Cases per 1,000 average strength per year [2]											
	Europe		Japan		Ryukyus		Korea		Caribbean		All other areas	
	1961	1962	1961	1962	1961	1962	1961	1962	1961	1962	1961	1962
January	39. 7	32. 7	40. 8	98. 0	210. 3	183. 9	382. 6	317. 4	90. 8	92. 2	40. 4	51. 6
February	35. 2	30. 1	44. 3	64. 8	157. 5	134. 3	352. 6	256. 6	91. 9	73. 7	57. 2	83. 4
March	40. 3	27. 9	48. 8	35. 8	143. 7	98. 3	340. 6	272. 5	114. 9	109. 8	39. 7	60. 0
April	41. 5	24. 8	38. 8	52. 8	167. 0	73. 4	334. 7	321. 1	111. 8	37. 2	36. 1	85. 6
May	40. 7	28. 8	37. 3	48. 3	149. 7	85. 6	307. 3	337. 7	99. 4	46. 2	36. 5	129. 1
June	43. 2	28. 7	55. 0	22. 3	107. 2	108. 4	326. 0	350. 9	63. 1	66. 8	68. 3	25. 2
July	40. 7	------	57. 8	------	146. 9	------	353. 6	------	97. 5	------	96. 9	------
August	43. 0	------	37. 4	------	173. 7	------	310. 0	------	90. 2	------	67. 2	------
September	38. 1	------	59. 6	------	220. 4	------	359. 0	------	82. 4	------	58. 5	------
October	33. 9	------	104. 3	------	201. 6	------	372. 9	------	91. 8	------	88. 4	------
November	32. 8	------	63. 1	------	226. 0	------	338. 7	------	67. 1	------	89. 2	------
December	30. 0	------	58. 4	------	170. 1	------	298. 2	------	103. 1	------	55. 1	------
Average	38. 3	28. 8	53. 8	53. 7	172. 8	114. 0	339. 7	309. 4	92. 0	71. 0	61. 1	72. 5

[1] Based on cases both excused from duty (admitted to hospital or quarters) and not excused from duty (carded for record only; that is treated as outpatients). Not EPTE: does not include cases Existing Prior To Enlistment.
[2] Statistics for 1962 include only 6 mos.

Table 5. Incidence rates for syphilis (all forms) (New—not EPTE [1]) Army personnel

Syphilis

Month	Rates per 1,000 average strength per year [2]											
	Europe		Japan		Ryukyus		Korea		Caribbean		All other areas	
	1961	1962	1961	1962	1961	1962	1961	1962	1961	1962	1961	1962
January	2. 5	2. 1	------	8. 9	2. 8	10. 0	1. 9	1. 1	6. 6	3. 7	------	2. 9
February	1. 5	2. 2	------	2. 5	1. 5	15. 1	2. 3	1. 0	7. 2	3. 7	------	------
March	2. 0	2. 0	2. 3	------	------	3. 5	1. 9	1. 1	5. 1	6. 2	------	------
April	2. 3	1. 0	------	4. 6	1. 4	5. 8	2. 1	1. 2	8. 5	2. 7	4. 0	2. 3
May	2. 5	1. 4	------	------	------	4. 6	1. 1	. 7	2. 8	------	------	15. 4
June	3. 0	1. 4	2. 4	4. 5	3. 8	9. 7	3. 7	. 5	4. 5	2. 8	------	------
July	3. 5	------	------	------	------	------	1. 3	------	7. 2	------	------	------
August	2. 1	------	------	------	3. 7	------	1. 8	------	1. 3	------	------	------
September	2. 3	------	4. 8	------	18. 1	------	2. 5	------	5. 1	------	------	------
October	1. 6	------	------	------	10. 9	------	2. 2	------	4. 6	------	7. 1	------
November	3. 4	------	------	------	4. 9	------	1. 1	------	4. 8	------	------	------
December	2. 0	------	------	------	13. 3	------	1. 3	------	6. 3	------	------	------
Average	22. 4	1. 7	. 8	3. 4	5. 0	8. 1	1. 9	. 9	5. 3	3. 2	. 9	3. 4

[1] Based on cases both excused from duty (admitted to hospital or quarters) and not excused from duty (carded for record only, that is treated as outpatients). Not EPTE: does not include cases Existing Prior To Enlistment.
[2] Statistics for 1962 include only 6 mos.

Table 6. Incidence rates for venereal diseases (New—not EPTE [1]) Army personnel

Month	Cases per 1,000 average strength per year [2]							
	Total V.D.				Syphilis			
	1961		1962		1961		1962	
	U.S.	Europe	U.S.	Europe	U.S.	Europe	U.S.	Europe
January	25. 2	39. 7	26. 2	32. 7	0. 5	2. 5	0. 7	2. 1
February	23. 5	35. 2	20. 9	30. 1	. 6	1. 5	1. 0	2. 2
March	25. 1	40. 3	22. 0	27. 9	. 9	2. 0	. 7	2. 0
April	25. 7	41. 5	22. 0	24. 8	. 9	2. 3	. 7	1. 0
May	28. 7	40. 7	23. 2	28. 8	. 8	2. 5	. 7	1. 4
June	28. 9	43. 2	24. 0	28. 7	1. 1	3. 0	. 6	1. 4
July	28. 8	40. 7	--------	--------	. 9	3. 5	--------	--------
August	30. 4	43. 0	--------	--------	. 6	2. 1	--------	--------
September	29. 2	38. 1	--------	--------	. 8	2. 3	--------	--------
October	23. 7	33. 9	--------	--------	. 5	1. 6	--------	--------
November	23. 5	32. 8	--------	--------	. 7	3. 4	--------	--------
December	18. 4	30. 0	--------	--------	. 4	2. 0	--------	--------
Average	25. 9	38. 3	23. 1	28. 8	. 7	2. 4	. 7	1. 7

[1] Based on cases both excused from duty (admitted to hospital or quarters) and not excused from duty (carded for record only, that is treated as outpatients). Not EPTE: does not include cases Existing Prior To Enlistment.
[2] Statistics for 1962 include only 6 mos.

Table 7. Incidence rates for venereal diseases (New—not EPTE [1]) Army personnel

Month	Total V.D.				Syphilis			
	1961		1962 [2]		1961		1962 [2]	
	U.S.	Korea	U.S.	Korea	U.S.	Korea	U.S.	Korea
January	25. 2	382. 6	26. 2	317. 4	0. 5	1. 9	0. 7	1. 1
February	23. 5	352. 6	20. 9	256. 6	. 6	2. 3	1. 0	1. 0
March	25. 1	340. 6	22. 0	272. 5	. 9	1. 9	. 7	1. 1
April	25. 7	334. 7	22. 0	321. 1	. 9	2. 1	. 7	1. 2
May	28. 7	307. 3	23. 2	337. 7	. 8	1. 1	. 7	. 7
June	28. 9	326. 0	24. 0	350. 9	1. 1	3. 7	. 6	. 5
July	28. 8	353. 6			. 9	1. 3		
August	30. 4	310. 0			. 6	1. 8		
September	29. 2	359. 0			. 8	2. 5		
October	23. 7	372. 9			. 5	2. 2		
November	23. 5	338. 7			. 7	1. 1		
December	18. 4	298. 2			. 4	1. 3		
Average	25. 9	339. 7	23. 1	309. 4	. 7	1. 9	. 7	. 9

[1] Based on cases both excused from duty (admitted to hospital or quarters) and not excused from duty (carded for record only, that is treated as outpatients). Not EPTE: does not include cases Existing Prior To Enlistment.
[2] Statistics for 1962 include only 6 mos.

ilis is related to what is condoned in a given community. Application of modern case-finding methods, combined with improved methods of diagnosis vigorously applied within the military populations, can reduce, and at least as demonstrated in the past decade when the Army has been increasingly deployed and redeployed to many areas of the world, have significantly reduced the impact of military concentrations in the spread of syphilis.

Influence of the Armed Forces on the Propagation of Syphilis

PIERRE DUREL, M.D.

ABSTRACT

In the fight against venereal disease, close liaison between French civil and military health services has been firmly established for over 100 years and now also includes the military medical services of allied troops stationed in France. It is made effective by joint exchange of information on new cases and their causes of infection, including search and eventual treatment of the assumed agents. Information bulletins and circulars on these matters are today bilingual.

Unfortunately, the system is not as successful as might be desired because the basic data making it possible to locate both the source and further contacts are frequently insufficient or inaccurate so that the reports stress the necessity for initially obtaining full and complete information.

With both military personnel and the carriers of infection, the problem is complicated by the frequent displacements inherent in the nature of the two professions.

Statistics obtained at the port of Toulon which is a military area, tend to show that nearly one-half of the cases reported were not of local origin but contracted in other towns or abroad, so that transmission of the requisite information to the point of origin involves delays which are adverse to success.

The relative greater risk of propagation by military personnel is, however, offset by the possibilities of systematic and immediate medical supervision which limits this risk, and through the cooperation with and of the civilian public health authorities.

SOMMAIRE

Dans la lutte contre les maladies vénériennes, une étroite collaboration entre les services sanitaires civiles et militaires a été établie en France depuis plus de cent ans; aujourd'hui, elles étend aussi aux services médicaux des troupes des Alliés cantonnés en France. Elle est caracterisée par les échanges. entre les services compétents, de renseignements sur les nouveaux cas, y compris le dépistage des agents contaminateurs et de leurs contacts. Ces échanges s'effectuent maintenant à moyen de bulletins bilingues.

Malheureusement, cette collaboration n'a pas rencontrée trop de succés parce que les données sur la source de contamination sont trop souvent inadéquates ou imprécises; le rapport souligne donc le besoin impératif de conduire, dès abord, un interrogatoire poussé sur tous les points essentiels de chaque cas.

Puisque les militaires ainsi que les femmes habituellement agents contaminateurs, se déplacent assez fréquemment, ce qui est normal aux deux professions, le problème se trouve foncièrement compliqué par ces circonstances. Des statistiques établies à Toulon, il ressort que presque la moitié des cas rapportés étaient contractées non pas à Toulon mais à d'autres villes et même à l'étranger; les délais de transmission des renseignements voulus en résultant opérent donc contre un dépistage efficace.

Pourtant, le danger relativement plus grand de propagation par les militaires est contrecarré, en grande partie, par le contrôle plus efficace permise au commandement militaire, jointe à une étroite collaboration avec et par les autorités sanitaires civiles.

RESUMEN

En el combate contra las enfermedades venèreas se ha establecido por más de cién años en Francia un unión firme entre los servicios de salud civiles y militares, y actualmente están incluidos los servicios médicos militares de las tropas aliadas asignadas en Francia. Este unión se hace operativo por el intercambio mútuo de información tocante a los casos nuevos y las causas de la infección, incluso la búsqueda y el tratamiento eventual de los casos y de los contactos. Los boletines y los circulares que incluyen esta información se redactan en dos idiomas.

Desgraciadamente el sistema no resulta tan acertado como se esperaba, porque los datos básicos para revelar la procedencia y los contactos adicionales son muchas veces insuficientes é inexactos; por consiguiente el informe da énfasis a la necesidad de conseguir información amplia desde el comienzo.

El problema se complica porque tanto el personal militar como los portadores de la infección suelen mudar de alojamiento por motivo del carácter de las dos profesiones.

La estadistica procedente del puerto de Toulon, que es una area militar, contribuye a probar que casi la mitad de los casos reportados no se originaron localmente, sino se contrayeron en otros pueblos ó paises. Por eso el envío de la información necesaria a la fuente de infección implica demoras que amenazan el buen éxito de la cura.

El riesgo relativamente mayor de la difusión por el personal militar, sin embargo, está compensado por la posibilidad de la intervención médica sistemática é inmediata que limita el riesgo, y por la cooperación mútua con las autoridades civiles de salud pública.

PROPHYLAXIS of venereal disease requires close collaboration between all public health authorities.

Liaison Between Civil and Military Authorities

Liaison between civil and military health authorities in France dates from 1832. Originally more or less sketchy, it was progressively strengthened and particularly so after the flare-up of the incidence of syphilis which occurred during the two World Wars.

The military medical services are represented in the Special Advisory Committee established in the Ministry of Public Health and Population. This committee develops the principles of the fight against venereal disease on a nation-wide scale. As in most countries, liaison is effected at the level of the ministries through the exchange of statistical data and of reports of the appearance of local points of infection.

At the local and regional level, military and civil physicians charged with anti-venereal disease control exchange epidemiological information of each case noted and periodically attend information meetings.

An identical liaison has been established between French civil public health authorities and the military medical services of allied troops stationed on French territory.

Documents Exchanged

Current regulations on obligatory reporting of contagious cases and search for the assumed agent of infection is applicable to the military services. Care free-of-charge is provided in civil or military anti-venereal dispensaries.

If a case of syphilis is discovered among the military forces, the military physician reports the case to the local civil authorities and furnishes epidemiological information as accurate as possible in regard to the declared or assumed agent of infection. The physician further reports the individuals which may have been contaminated and the civil dispensary attempts to identify them so as to induce them to be examined and treated, if necessary. Military physicians utilize the (information) bulletins employed in the civilian public health services.

In order to facilitate the exchange of information with U.S. units, special bilingual reports have been developed jointly by the French civil public health services and by the U.S. military medical services.

Civil physicians transmit to the military medical services the epidemiological information concerning assumed agents of contamination among the military. The percentage of such requests for a search is only one in about 75 cases, according to partial statistics involving 1,000 histories of contagious venereal diseases, including 244 cases of primary/secondary infections divided among 169 males and 75 females. In only one case was an assumed agent of infection found among navy personnel.

Results

Reasons for failure: The efficacy of such exchange of information may be jeopardized by the inadequacy or inaccuracy of the data furnished. Between September 1961 and the end of June 1962, 803 inquiries including 83 cases of primary/secondary syphilis, were transmitted to the civilian public health services by the U.S. military medical services. Among these 83 inquiries, 34 assumed agents of infection were located, of which 22 were not infected and 12 were treated; 30 inquiries resulted in advice that the agent of infection could not be located because the data were inadequate; 19 inquiries have not yet been answered. That means that nearly one-half of the inquiries made could not be concluded successfully, even though the columns of the bilingual bulletins are extremely specific. Partial statistics show the same percentage of failure on a nation-wide scale. This points to the importance of well-conducted and sufficiently extensive interrogation which is, however, made very difficult by a variety of circumstances such as forgetfulness, drunkenness, ignorance of the native language and other factors.

The frequent displacements of assumed agents and cases of infection (prior to discovery) partially explain the failures of epidemiological inquiries. As far as stationary troops (military camps or ports where habitual prostitution—resident prostitutes, barmaids, dance-hall hostesses—exists) are concerned, an epidemiological inquiry in case of an infection can be carried out effectively since exchange of information is quick and the resident agents are normally easily located. This is not the case when both parties move about freely. Among military personnel, we must remember

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highly frequent changes of location through transfer of units or individuals, training courses, and leaves. Among the women, we know that the arrival of navy ships at a port is accompanied by an afflux of the occasional prostitutes which swell the ranks of the resident prostitutes during that time and then return to their locality of origin. As a consequence, the disease is often tracked down to a place very far away from the one where it was contracted.

Statistics established at Toulon (Mediterranean Military Port) shows the great number of cases of syphilis discovered among soldiers or sailors which were contracted in another town or abroad. (Table 1.)

Table 1. Cases of primary/secondary syphilis reported among sailors and soldiers

Year	Total cases	Cases contracted		
		Locally	Other town	Abroad
1960	30	6	8	16
1961	39	19	6	14

Although limited in extent, these figures point up the fact that one-half of these epidemiologic inquiries had to be transmitted to public health services outside of Toulon and even abroad. In these cases, the delay in transmitting such information is apt to be rather long. However, special effort such as telegraphic transmission to the public health authorities of other countries tends to shorten such delay. The statistics show that the period required for effecting an epidemiologic inquiry varies between 48 hours and one month but that, beyond a period of 8 days, such an inquiry is rarely successful.

The major advantage of liaison between civil and military health services consists in a better knowledge of the localized points of infections for stationary troops in either military camps or ports where habitual prostitution exists. Like the ports, the large towns and the capital are among the most active localized points of infection for troops on leave or in a travel status.

Within these areas, "microfoci of infection" may be tracked down to bars, cafes, dance halls. This is very important from the point of view of prophylaxis because military commanders are able to place certain public places "off-limits" to troops.

Occasional prostitutes, "B-girls," and bar waitresses are most often the source of the infection.

In the example cited above for the port of Toulon in 1960, all cases of primary/secondary syphilis reported by the Navy were contracted from prostitutes.

Incidence of Syphilis

The age groups of the population most affected appear to be those between 18 and 20 years and between 21 and 29 years. A slightly higher incidence than that for the civilian population in similar age groups has been noted among military personnel. (Table 2.)

Table 2. Incidence of primary and secondary syphilis in 1960

Civilian population	Number cases per 100,000 civilians
General incidence	5. 5
18 to 20 years:	
Both sexes	10. 0
Men only	15. 0
20 to 29 years:	
Both sexes	22. 0
Men only	24. 0
30 to 44 years:	
Both sexes	9. 0
Men only	12. 0
Military personnel (ground forces)	**Number cases per 100,000 military personnel**
All ages	29. 0
During compulsory military service:	
Drafted	25. 0
Enlisted	52. 0
After compulsory military service:	
Professional military personnel	30. 0

It should be noted that serological examination for syphilis is obligatory in France for all recruits entering military service. Among the civil population, such examination is also obligatory for certain classes of individuals (premarriage and pre-natal tests, students, and others).

Conclusion

Liaison between civil public health authorities and military medical services in France is established on a solid basis making possible close cooperation in the fight against syphilis, as in most other countries.

The value of the entire system is based on the thoroughness of the initial interrogation and on the speed of transmission of epidemiological information sufficiently complete and at the proper time to permit efficient exploitation.

Although the military forces in a country constitute a specific risk of propagation of venereal diseases due to the age and the frequent displacements of such personnel, they offer, on the other hand, possibilities of systematic and immediate medical supervision which limit this risk to which effective cooperation with the civilian public health authorities is a definite contribution.

International Exchange of Epidemiologic Information

S. E. ACRES, M.D.

ABSTRACT

The broad sense of the term "epidemiologic information" would encompass clinical diagnosis, serologic testing, treatment, and control methods. In a narrower sense this term means contact information. In this paper consideration is restricted to international exchange of such data in relation to venereal syphilis.

Infected contacts who cross international boundaries may reintroduce syphilis into areas where the chain of infection has been ended.

History shows that syphilis has always been an international health problem.

The mobility of populations is greater now than ever before. There is an incredible volume of international traffic. In this great volume are individuals who create special problems in V.D. control—prostitutes, migrant workers, and promiscuous pleasure seekers. Eradication of syphilis will depend on all countries co-operating with each other to locate syphilis contacts who continue to disseminate this disease.

In 1948 the Interim Commission of WHO recommended a system of contact tracing. The Pan American Sanitary Bureau actively promoted this exchange process, which permits effective communication in English, Spanish, and French.

A common procedure for international exchange of contact information is recommended. A standard form used in quadruplicate or quintuplicate would eliminate duplication of typing and clerical work.

Many countries exchange information on infectious syphilis contacts by telephone or telegraph, considering this a medical emergency.

SOMMAIRE

Le terme d'"information épidémiologique" pris dans son sens le plus large engloberait le diagnostic clinique, les tests sérologiques, le traitement et les méthodes de lutte préventive. Pris sans un sens plus restreint, il signifie information sur les contacts. C'est à ces données dans le domaine de la syphilis vénérienne que nous nous bornerons dans le présent rapport.

Les contacts contaminés qui franchissent des frontières internationales peuvent réintroduire la syphilis dans des régions où l'on avait mis fin à la chaîne d'infection.

L'histoire montre que la syphilis a toujours constitué un problème d'hygiène international.

La mobilité de la population est plus grande de nos jours qu'elle ne l'a jamais été. Le volume de la circulation internationale est incroyable. Dans cette grande masse se trouvent des individus qui créent des problèmes particuliers dans la lutte anti-vénérienne—prostituées, travailleurs saisonniers, voyageurs en quête de plaisirs faciles. On ne fera disparaître la syphilis que si tous les pays collaborent au dépistage des contacts qui continuent à propager la maladie.

En 1948, la Commission Temporaire de l'OMS recommanda un système de dépistage des contacts. Le Bureau Sanitaire Pan Américain a encouragé de ses efforts cette méthode d'échange qui permet des communications efficaces en anglais, en espagnol et en français.

Nous recommandons une méthode commune d'échange international d'information sur les contacts. L'adoption d'une même formule de déclaration à remplir en quatre ou cinq exemplaires réduirait les travaux d'écriture.

Un grand nombre de pays échangent des renseignements sur les contacts syphilitiques par téléphone ou par télégramme, parce que telle information est considérée comme une urgence médicale.

RESUMEN

El sentido comprehensivo de las palabras "información epidemiológica" incluiría la diagnosis clínica, las pruebas serológicas, el tratamiento y los métodos de represión. En un sentido más reducido las palabras significan información de contactos. En este artículo se limita la consideración al intercambio internacional de datos relacionados con sífilis venérea.

Los contactos infectados que atraviesan las fronteras internacionales pueden introducir la sífilis á distritos donde ya se ha roto la cadena de infección.

La historia prueba que la sífilis siempre ha sido un problema internacional de salud.

La movilidad de los pueblos hoy está mayor que nunca antes. Es casi increible el caudal del tráfico internacional. En este enorme caudal hay individuos que crean problemas especiales para la represión de las enfermedades venéreas—prostitutas, trabajadores migratorios y buscadores promíscuos de placer. La erradicación de la sífilis dependerá de la cooperación mutua de todos los paises para descubrir los contactos sifilíticos que siguen diseminando esta enfermedad.

En 1948 la Comisión Interina de WHO recomendó un sistema para seguir la pista de los contactos. El

Departamento Sanitario Pan Americano activamente favorcció este intercambio, el cual permite comunicación efectiva en inglés, español y francés.

Un procedimiento común para intercambio internacional de información de contactos es recomendado. Una forma normal con cuatro o cinco copias eliminaría mucha duplicación en el trabajo clerical.

Muchos países intercambian la información de contactos sifilíticos por teléfono ó telégrafo, porque creen que es una necesidad médica de urgencia.

IN ITS BROADEST sense, the term "epidemiologic information" would mean any item of knowledge contributing to an understanding of the treponematoses. This would encompass clinical diagnosis, serologic testing, treatment, and control methods. Wide exchange of information on these aspects now occurs through the medium of medical journals. This is indicated by the large number of abstracts appearing in *Current Literature on V.D.*, an annotated bibliography compiled periodically by the United States Public Health Service. In a narrower sense, the term "epidemiologic information" means contact information. International exchange of such data is becoming increasingly important, and in this paper consideration will be restricted to this one aspect of control procedure.

Exchange of contact information will be considered solely in relation to venereal syphilis. The spread of the non-venereal treponematoses is generally local in nature. Endemic syphilis, yaws, bejel and pinta are usually transmitted among members of crowded communities and households with substandard living conditions. Control efforts are successful when founded on the technique of mass treatment, and penicillin therapy on a community-wide basis has proven the most feasible approach. In contrast, the complete control of venereal syphilis cannot be achieved by neatly planned campaigns confined to local geographic regions. Eventual eradication of syphilis will depend on the success and completeness of individual contact tracing. Infected contacts who cross international boundaries pose a special threat of reintroducing syphilis into areas where the chain of infection has been terminated. These individuals are each nation's unwitting and unwelcome importers and exporters of disease, and this paper will deal only with exchange of information concerning such persons who create an international health hazard.

Need for Exchange of Information

The past is replete with examples which show that syphilis has always been an international health problem. An infection similar to syphilis, known as Seamen's-Jealousy, was prevalent in Chinese coastal towns in ancient times; an epidemic swept Europe soon after the return of Columbus and his sailors from America; the forays of the army of the French king, Charles VIII into Italy, contributed greatly to the spread of the disease. The most recent example of syphilis as a major international health problem is found in conjunction with World War II. The combination of vast social upheaval and large scale movement of military and civilian populations created a critical epidemiologic problem for many nations.

At present, the mobility of populations is greater than ever before. It is now possible to travel between major cities of the world in a matter of a few hours, e.g., from New York to London, 6 hours; to Paris, 7 hours; to Rome, 9 hours; to Mexico City, 5 hours. As well as increased speed, there is an incredible volume of international traffic. In 1960, Canada was host to 29 million visitors from the United States, 25 thousand from the United Kingdom, 14 thousand from Europe and over 700 from Mexico (*1*). In the same period, over 61 million people crossed the Mexico-United States border, and more than a million other persons visited the United States from overseas countries (*2*). In the flow of this great volume of international traffic are those individuals who create special problems in V.D. control—prostitutes, migrant workers, and promiscuous pleasure seekers from all classes of society. Their activity is reflected in the increasing number of international transfers of contact information. Canada exchanged approximately 400 contact reports with foreign countries last year. In 1961, the United States sent over 2,000 reports to 52 foreign countries, and received over 200 reports from 12 foreign countries (*3*). This exchange of information involved such distant lands as China, Africa, Argentina and New Zealand.

Thus, if control of venereal disease is to be achieved, it is obvious that contact tracing must not stop at national boundary lines. International exchange of contact information is a particularly important aspect of control procedures at the present time in view of the increasing incidence of infectious syphilis, and

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the increasing volume and speed of international travel. The recent introduction of smallpox into England is a dramatic example of the rapidity and ease of transmitting a disease from an endemic region to an area where control or eradication has been effected. Eradication of syphilis will depend on the health departments of all countries co-operating with one another in locating those syphilis contacts who, through indifference or ignorance, continue to act as human vectors in perpetuating and disseminating this disease.

Present Methods

International exchange of contact information has been considered on several occasions by WHO advisory and other bodies. As early as 1948, the Interim Commission of the World Health Organization recommended the establishment of a system of contact tracing such that each country would agree to communicate, confidentially and directly to the public health authorities of other countries, the names and addresses of venereal disease contacts thereby facilitating rapid epidemiological investigations.

The only WHO Regional Office to actively promote such an exchange process has been the Pan American Sanitary Bureau. In March 1956, the Bureau published its excellent brochure *Exchange of Reports of Cases of Venereal Diseases, and Contacts of Cases in the Americas*, PASB Miscellaneous Publications No. 30. It advocated that all countries in the Americas use a triplicate report form PASB 202E for international exchange of contact information. Simple instructions were given for preparing the reports in English, Spanish or French, depending on the official language of the recipient country. A glossary of terms in these three languages was provided, and also an outline of procedure for routing reports.

The PASB system is used effectively and routinely by many health departments, notably in the Mexico-United States border area. However, some health departments continue to use the forms of their own state or country. This means that many different forms are used for the same purpose.

Need for a Standardized Procedure

There is much to commend the universal adoption of a common procedure for the international exchange of contact information. Some of the more obvious advantages of the Pan American system are:

1. A standard system of routing reports directly from the state health department of one country to that of another eliminates unnecessary delay in transmitting information through a national or international authority. Prior to 1956, the Bureau had acted as an international clearinghouse for member countries of the Pan American Health Organization. Reports passed from local to state to national health departments, and then to the Bureau for forwarding to the recipient country where a further transfer from national to local level occurred. This often caused such prolonged delay that the information was rendered of little or no epidemiologic value.

2. The use of identical report forms in English, Spanish and French, and the use of the glossary of terms as provided by the Bureau overcome problems of communication in these three languages. Under the egis of other Regional WHO Offices, an identical system of communication could be promoted in other areas and in other languages. This would eventually lead to intelligible and effective transfer of contact information on a worldwide basis.

3. Clerical and typing tasks are not complicated by a different report form from every country. This simplifies and speeds processing of information.

4. Statistical tabulation and analysis of contact investigation can be made comparable between countries. This is impossible when a variety of forms are used, as there is no uniformity in data requested on contact description, nor any standard method of recording results of investigation.

5. As well, there is the hope that adoption of a standard system might develop a bond of common interest and purpose among V.D. control workers of all countries, and thereby help to promote this phase of the control program.

Few would deny these advantages. Why then do some countries, and their states or provinces persist in using report forms unique to their own purposes and follow routing procedures which are often indirect and time consuming? Are there good and sufficient reasons for perpetuating this confusion, or is it continued simply as a result of established custom and inertia? Does the PASB system unnecessarily add an extra report form to the ones generally used for intercountry, interstate or interprovincial transfer of information? Admittedly, slight complications are introduced in the mechanics of routing procedures. PASB 202E, as it now stands, is a triplicate form.

The health department initiating the investigation retains one copy, and forwards the remaining two copies to the health department concerned. As the recipient health department is usually at the state or provincial level, one of the two copies must be forwarded to the local health department in the municipality where the contact claims residence. The results of investigation should be returned on the same form. The function of the triplicate form is not totally adequate at this point, since the local health department is left without a copy for its own records. This minor deficiency could be easily overcome by printing PASB 202E as a quadruplicate or quintuplicate form, thereby adding sufficient copies to satisfy routing requirements in all countries.

In practice, when the state or provincial health department receives PASB 202E, the information is usually transcribed immediately to the domestic forms. There is, therefore, considerable duplication of typing and clerical work because of the variety of forms and procedures in existence. In Canada, for example, each of the 10 provinces has its own contact report form. There is more uniformity in the United States where PHS Form 2936 is generally used. The ideal solution would seem to be the use of a common report form by all countries, for transfer of information both within and beyond national boundaries. International exchange could then function simply as an extension of the established interstate or interprovincial procedures, and would be identical for all. In Canada, a recently formed National Advisory Committee on Epidemiology will meet this fall. Consideration will be given to the use of a common contact report form by all provinces. It is hoped that this will be identical to PASB form 202E which would have particular applicability because of Canada's bilingual culture.

Many countries now wisely consider exchange of information on contacts to infectious syphilis a medical emergency, and have established a practice of telephoning or telegraphing relevant information immediately. The official report forms follow as usual by mail. The value of this procedure has been proven beyond doubt. It is already used internationally by some countries, and should be encouraged. It is found particularly effective in areas such as the Mexico-U.S. or Canada-U.S. border regions, where close liaison can be established between neighbouring health departments.

Summary and Conclusions

1. There is a rising incidence of infectious syphilis and an increasing volume of international traffic. Among other measures, it is therefore imperative that health departments of all countries co-operate in bringing to a successful conclusion all contact investigations which extend beyond national boundaries.

2. Through the efforts of the Pan American Sanitary Bureau, machinery already exists for a direct, standardized system for exchange of contact information between nations. This system permits intelligible and effective communication in English, Spanish and French. Promotion of an identical system in other regions and in other languages might well be undertaken by the World Health Organization. There are, of course, obvious difficulties to overcome, such as lack of facilities in some countries to act upon information given, or legislative complications which might make communications on venereal diseases privileged information.

3. Universal adoption by all countries of one standard form for transfer of contact information both within and beyond national boundaries would undoubtedly facilitate exchange procedures, and eliminate unnecessary transcription of information from foreign to domestic forms.

4. Epidemiological investigations will be enhanced if information concerning contacts to infectious syphilis is transmitted directly and without delay between health departments concerned.

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Impact of Prostitution on Syphilis Control

PAUL M. KINSIE

ABSTRACT

The success achieved in the fight against syphilis and other treponematoses in one country depends, in part, on the success achieved in all other countries. Today people move from country to country more easily and more quickly than they once moved from village to village.

The American Social Health Association deals with both prostitution and the venereal diseases as it is impractical, if not impossible, to isolate either one.

At the present time it is estimated that the rate of V.D. infections among prostitutes in some areas runs quite low compared to that which existed when open and flagrant prostitution thrived. Vigorous law enforcement has been an effective factor.

Occasionally the opinion is expressed that it is better to segregate prostitution in one area of the community. This segregation has thus far never been achieved.

No system of examination or certification has ever been worked out to safeguard the patrons of prostitutes against infection.

Today many prostitutes are using some form of penicillin as a prophylaxis. The drop in V.D. rates among prostitutes is believed directly due to their own efforts.

Today the typical prostitute may have one or two customers in an evening. Thus the reduction in exposures reduces the risk of infection.

Vigorous and consistent law enforcement which has reduced prostitution to its lowest denominator has been a major factor in the control of V.D.

SOMMAIRE

Le succès auquel on arrive dans la lutte contre la syphilis et autres tréponématoses dans un pays dépend en partie du succès auquel on arrive dans tous les autres pays. Aujourd'hui les gens se déplacent d'un pays à un autre plus facilement et plus rapidement qu'ils n'allaient dans le temps d'un village à un autre.

L'Association Américaine de la Santé Sociale s'occupe à la fois de la prostitution et des maladies vénériennes car il est difficile, pour ne pas dire impossible, d'isoler l'une de l'autre.

A l'heure actuelle on estime que la fréquence des maladies vénériennes parmi les prostituées dans certaines régions est assez faible par comparaison avec ce qu'elle était quand la prostitution existait à l'état flagrant. Des lois appliquées avec vigueur ont contribué effectivement à cet état de chose.

On entend dire de temps à autre qu'il vaudrait mieux isoler la prostitution dans une région particulière d'un pays. Jusqu'ici on n'est jamais arrivé à cela.

Aucun système d'examen ou de certificat n'a jamais pu être appliqué pour protéger les clients des prostituées contre l'infection.

Aujourd'hui un grand nombre de prostituées se servent de pénicilline sous une forme ou sous une autre à titre de prophylaxie. On est d'avis que la moins grande fréquence des maladies vénériennes parmi les prostituées est due directement à leurs propres efforts.

Aujourd'hui une prostituée typique aura peut-être un ou deux clients par soirée. Le nombre moins grand d'expositions à la contagion diminue les risques d'infection.

Le fait que les lois ont été appliqués de façon énergique et constante a fait baisser la prostitution et a été du même coup un facteur important dans la lutte préventive contre les maladies vénériennes.

RESUMEN

El buen éxito conseguido en la batalla contra la sífilis y otros treponematoses en un solo pais en parte depende del éxito conseguido en todos los otros paises. Hoy en dia la gente se traslada de un pais a otro con más facilidad y más rapidez que de un pueblo a otro en tiempos pasados.

La Asociación Americana de Salud Social trata igualmente con la prostitución y con las enfermedades venéreas, puesto que no es práctico ni posible apartar la una de la otra.

Actualmente se calcula que la proporción de infecciones de las enfermedades venéreas entre las prostitutas está bastante baja en algunos lugares en comparación con la que regia cuando medraba la prostitución abierta y notoria. Ha sido factor efectivo la ejecución vigorosa de la ley.

A veces se oye la opinión de que es mejor apartar la prostitución a una sola sección del pueblo. Hasta ahora no ha sido posible llevar á cabo tal separación.

Ningún método de inspección ó certificación ha sido puesto en operación que asegure la prevención de la infección para los patronos de las prostitutas.

Actualmente muchas prostitutas se aprovechan de alguna forma de penicilina como profilaxis. La baja en la proporción de las enfermedades venéreas entre las prostitutas se atribuye directamente a los esfuerzos de ellas.

Una prostituta tipica en estos tiempos puede entretener á uno ó dos patronos cada noche. Así que una diminución de contactos resulta en una redución al el peligro de la infección.

La ejecución vigorosa y consistente de la ley que ha efectuado una diminución radical de la prostitución ha sido un factor principal en la represión de las enfermedades venéreas.

OVER THE PAST half century, which is nearly the lifetime of my organization, it has become increasingly necessary for each one of us to be concerned about the other's problems. Fifty years ago, it would have been impossible to hold this kind of world forum—today, it is inevitable. We all know that the success achieved in the fight against syphilis and other treponematoses in one country depends, in part, on the success achieved in all other countries.

Mobility has today reached an all-time high. People move from country to country more easily and more quickly than once they moved from village to village. And, as they move about, they take their problems with them. We can truly say that, in a sense, every country is involved in the business of importing and exporting social problems. It is imperative, therefore, that the problems we are concerned with in this Forum be approached from an international viewpoint. One wonders how soon we shall have to broaden our vision to even greater dimensions and turn our attention to ways and means of preventing the spread of the venereal diseases to newly settled areas of the Moon. Some of us may still smile a little at the idea, but we know that for the first time in the history of the world, the comment carries some weight of reality.

Perhaps we will have an opportunity to test whether or not it is possible, in a new society, to prevent the development of these problems which were so firmly entrenched at one time in our own earth-bound societies before we ever took action to resolve them. If this be so, I propose here and now that, as lunar communities are established, steps be taken to prevent the practice of prostitution in such communities. This action, in itself, will reduce substantially the threat of venereal diseases in a new world.

It is not coincidence that the American Social Health Association deals with both prostitution and the venereal diseases. The two problems are so entwined that it is impractical, if not impossible, to isolate either one. Great progress has been made in both areas since World War I, but neither prostitution nor V.D. or the treponematoses has disappeared in my country or in yours. It appears that, no matter how much progress we make toward solving these problems, we cannot relax our vigil, cannot turn our backs for a minute. We have learned, by bitter experience, that as soon as controls are lightened, the exploiters of the prostitution racket break into full-scale activity and V.D. rates go soaring upward. That is the nature of the problems we are charged with solving.

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Incidence of V.D. Among Prostitutes

I'm sure the fact that prostitution has a tremendous effect on the rate of venereal disease and treponematoses in any country comes as no surprise to any of you. My experience with these problems has been, of course, predominantly here in my country and I am more familiar with what has happened here than elsewhere. I know, for example, that 30 or 40 years ago—in the days when commercialized prostitution was a flourishing business or racket (and it was both) in most of our cities, as many as 98% of the prostitutes in some areas were infected at one time or another with V.D. In the old-time "red light districts" one prostitute might have as many as 30 or even 50 customers in a 24 hour period. It is obvious that, under these conditions, the spread of infection was fantastically rapid.

In those days little was known about the venereal diseases. Many of the prostitutes regarded syphilis as a mild kind of blood disease; others considered gonorrhea as little more than a cold. Many of their patrons felt the same way about V.D. They consulted quack doctors or bought patent medicines at the corner drug store, almost invariably with disastrous results. There was a general attitude of acceptance. Gradually V.D. infection was recognized as one of the hazards of the miserable business they were involved in, an occupational disease that was inevitable.

No one knows how many prostitutes died from the ravaging effects of V.D., or how many lives were shattered by the infection they transmitted to others.

Present Low V.D. Rates Among Prostitutes

Today, the situation in this country is quite different. It is estimated by competent authorities that the rate of V.D. infections among prostitutes in some areas runs quite low compared to that which existed when open and flagrant prostitution thrived in city after city.

What has brought about this striking change? Well, frankly, there is no easy, simple explanation. Many factors have been involved in the

process that changed the face of prostitution in this country.

Vigorous law enforcement has been one of the most significant and effective factors. For nearly half a century, the American Social Health Association has been working with community groups, public health officials and law enforcement agencies to combat all phases of prostitution activity, especially its attendant exploitation of women and girls. Prostitution does not exist in a vacuum. It invariably attracts a variety of racketeers and creates an environment in which criminal activities flourish.

From time to time, citizen groups express the feeling that it is better to segregate prostitution in one area of the community, to permit its practise within a "red light district" so that law enforcement officers can more easily keep all activities under surveillance, and so that women and girls outside the area will be safer. They feel, too, that this arrangement is better from a health standpoint, that there is less danger of spreading V.D. if the prostitutes are required to have regular medical examinations.

These citizen groups are well-meaning, but ill informed. They are not aware of the fact that it is impossible to confine prostitution to one specific area in a community—at least, it has never been achieved thus far. In all cities where red light districts existed frequently more prostitutes were found operating outside of those districts than within them. Women and girls in other areas of the community are not as safe as they think, because of the criminal characters attracted to the prostitution racket. The racketeers who grow rich from prostitution invariably seek to gain more power and greater wealth by extending their domain—they find it profitable to pressure politicians and push around some of the local businessmen. The record shows that any city that fosters a red light district or any area comparable to it regardless of how diligently it is policed, is harboring a volcano.

As for the matter of health, the citizens who advocate establishing a red light district to prevent the spread of V.D. are arguing against themselves. No system of examination or certification has ever been worked out to safeguard the patrons of prostitutes against infection. Only when V.D. has been eliminated will the risk of infection be removed. Immediately after examination, a working prostitute may be exposed to infection and it's hard to guess how many patrons will pick up the infection from her before she even realizes she has the disease.

We have learned, through experience, that even frequent medical examinations, followed by treatment when necessary, are not effective in protecting the active prostitute and her customers against infection. However, over the years since the advent of penicillin, many prostitutes have learned a great deal about V.D. and are keenly aware of the risks they run in their trade. They are doing a far better job today of taking care of themselves and of protecting themselves against infection. Instead of buying phony medicines at the corner drug store, many are using some form of penicillin as a prophylaxis. It is believed that some part of the drop in V.D. rates among prostitutes is directly due to their own efforts.

Strict law enforcement has wiped out, in most areas in this country, the traditional establishment where a hard-bitten Madam kept the girls in line, trained the new recruits, collected the fees from patrons, doled out subsistence wages to the overworked girls and turned over large percentages to the racketeer who kept the law away from the door. This was, indeed, a cruel racket. The prostitute, whose services were the foundation of the business, was victimized and exploited from every angle. She was so overworked that her career often was comparatively brief. She was soon too old to be useful to the establishment, and she was so underpaid that she had nothing left to go on when she was turned out on her own. It was more than likely that she had some form of V.D. infection—and no money for medical help. To stay alive, she followed the only trade she knew, continuing to transmit her infection until she was too ill to work at all. No matter how you look at it, this was a shameful business and a threat to any community in which it prospered.

Thanks to an aroused public opinion and persistent law enforcement, there is almost no area in the United States now where prostitution is being carried on in this form. Today, the typical prostitute is on call and frequently the go-between is a bellboy in a hotel.[1] She may have only one, possibly two customers in an evening—sometimes, she has no more than three or four a week. Where once the average fee was three dollars, today the minimum in most areas is around 10 dollars and sometimes considerably higher. For this reason, the prostitute is not required to accept nearly as many patrons as used to be the case. The drastic reduction in exposures, obviously, reduces the risk of infec-

[1] On occasion a cabdriver indulges in pandering. Often a bartender in a so-called "drink spot" aids and abets in procuring a customer for a prostitute.

tion and this, too, may be a key factor in the lowered V.D. rates among prostitutes.

It is true that prostitution may always be with us. We may never be able to eliminate it. But the progress that has been made toward that goal since the first World War is indeed encouraging. We cannot say that, in any city, a prostitute cannot be found. We can say that, in most cities, it requires a diligent search to find a prostitute. The streetwalker has become almost a rarity. Few landlords these days will knowingly rent their property to prostitutes because they fear the law and the condemnation of their neighbors.

Legal Curtailment of Prostitution

Ironically enough, the two World Wars fought in this century, horrible as they were, made a substantial contribution to the work of curtailing the practice of prostitution in this country. The Draft Act of 1917, for which the American Social Health Association was largely responsible, prohibited prostitution in the vicinity of military posts and naval establishments. Members of the Association's staff became part and parcel of the Commission on Training Camp Activities. Their assignment was to make sure that the Draft Act was rigorously enforced. This was a staggering blow to the prostitution interests, for traditionally this vicious racket has flourished in wartime. But, in 1917, our government was sufficiently aware of the dangers of prostitution, and the devastating effects of V.D., that it felt obliged to take action. Government intervention resulted in a drastic cleanup of conditions throughout the country as a safeguard to our fighting forces.

The war had scarcely ended, however, when the prostitution underworld began to re-establish itself in many of our cities. Exploiters, prostitutes, law enforcement officials and much of the public interpreted the suppression of the racket, which had been remarkably successful throughout the conflict, strictly as war measures. Many states needed adequate legislation to outlaw the unsavory and menacing activities that began to re-develop. Our Association was instrumental in promoting the passage of some preventive legal measures, but unfortunately law enforcement lagged. The keen public interest which brought about enactment of the laws was not directed toward their enforcement.

Not until our entry into World War II appeared imminent did the Federal government again intercede to insure better law enforcement against prostitution which affected not only those in service, but communities in general. Our Association had a hand in bringing about enactment of the May Act in 1941, a measure similar to the Draft Act, and in creation of the Community War Services Division of the Federal Security Agency, whose objective was similar to that of the Commission on Training Camp Activities.

Once again, prostitution interests felt the heavy hand of the law. Once again, great inroads were made against the racket. I call your attention to these wartime developments because it seems to me they illustrate clearly the impact of V.D. on prostitution, which is a reverse statement of my subject. It was apparent that wartime measures aimed toward cleaning up the prostitution racket were motivated chiefly by the need to prevent our fighting men being incapacitated by the ravages of V.D.

After World War II, history repeated itself. The prostitution underworld again strove to make a comeback, but its efforts this time were not as successful. Since the end of World War II, as noted earlier, the prostitution picture in this country has changed strikingly. Relatively few communities today tolerate the racket. There is general agreement that prostitution has been reduced in most areas of the United States to a minimum.

Conclusion

But, there is nothing permanent about this situation. It must be underscored, emphasized again and again, that in dealing with the prostitution racket we cannot be satisfied—we cannot turn our backs—we cannot relax our vigil.

Elimination of V.D. is now within the realm of possibility, even of probability. Elimination of prostitution is still a dream, a far-off goal. But, I think no one will refute the point that vigorous and consistent law enforcement which has reduced prostitution to its lowest denominator has been a major factor in the control of V.D.

It is imperative, in the period between now and the time when we shall initiate preventive measures on the Moon, that all of us work together, sharing our knowledge and our techniques and experience, to solve the problems of prostitution and V.D. everywhere in our world—for as long as they flourish anywhere, all of us are threatened.

Effect of Urbanization on the Spread of Syphilis

RALPH R. SACHS, M.D.

ABSTRACT

We have now come back to the realm of the behavioral scientist for the answers to V.D. control, and to the old-fashioned concept of the social nature of the venereal diseases.

The following are some of the factors in our burst of urbanization that make for an increase in incidence of syphilis. The first is mobility. The average length of residence at one address is five years. Opportunities for forming casual sex relationships are greater than in the small community.

A concomitant element of urbanization is the breakdown of old cultural patterns and mores. The family is less tightly knit and the city itself dilutes the amount and kind of supervision that can be given children. Parents face competition with conflicting urban social forces. Among 15- through 19-year-olds in Los Angeles, syphilis has risen nearly seven-fold in the past five years.

Male homosexuality accounts for the largest portion of our increase in reported cases of syphilis in Los Angeles. In urban areas, homosexuals build social acceptability within their own large group, which creates a huge reservoir when syphilis is introduced.

Our highest per capita syphilis rates are found in densely populated, low socio-economic areas.

More educational effort must be devoted to venereal disease at all levels. The immediate attack upon syphilis is early case finding, contact follow-up and treatment. Physician visitation has been undertaken in Los Angeles and the "cluster testing" technique has also been introduced.

SOMMAIRE

Une fois encore c'est au spécialiste des questions de comportement individuel et social que nous demandons de nous indiquer des moyens de lutte préventive contre les maladies vénériennes, et nous sommes revenus au principe vieux jeu qui considère les maladies vénériennes comme étant d'une nature sociale.

Les éléments suivants sont certains des facteurs dans le développement brusque de nos centres urbains qui sont responsables d'une augmentation dans la fréquence de la syphilis. Le premier est la mobilité. En moyenne, les gens habitent à un adresse pendant cinq ans. Plus que dans un petit pays a-t-on l'occasion de former des rapports sexuels dont la durée n'est pas longue.

Un facteur concomitant du développement des centres urbains est l'écroulement des anciennes habitudes et des coutumes culturelles. La famille est moins unie et la ville elle-même dilue le genre de surveillance que les parents exercent sur leurs enfants et le temps qu'ils peuvent y consacrer. Les parents se trouvent en concurrence avec des forces sociales urbaines qui s'opposent à eux. Parmi les jeunes de 15 à 19 ans à Los Angeles la syphilis s'est multipliée près de sept fois pendant les cinq dernières années.

L'homosexualité mâle est responsable de la plus grande portion de l'augmentation des cas de syphilis signalés à Los Angeles. Dans les centres urbains, les homosexuels forment des groupes nombreux dont les membres se font réciproquement bon accueil, ce qui crée d'énormes réservoirs où la maladie se propage quand la syphilis est introduite.

Notre taux de syphilis le plus élevé par rapport au nombre des habitants se trouve dans les régions densément peuplées et à faible standard socio-économique.

Il nous faut consacrer un plus grand effort éducatif à tous les niveaux de l'échelle sociale en ce qui concerne les maladies vénériennes. Pour ce qui est de s'attaquer directement à la syphilis, il faut découvrir les cas de bonne heure, rechercher les gens avec qui les malades ont été en contact, et se livrer au traitement. On a commencé à Los Angeles un programme de visite aux médecins privés pour savoir s'ils ont traité des cas, et on a aussi introduit une technique dite d'"essais de groupes".

RESUMEN

En la actualidad se ha apelado nuevamente al científico de la conducta para solucionar el problema del control de las enfermedades venéreas, así como al anticuado concepto del carácter social de dichas enfermedades.

He aquí algunos factores inherentes en nuestro exceso de urbanización que contribuyen a incrementar la incidencia de la sífilis. El primero de ellos es la movilidad. El periodo medio de residencia en una dirección dada es de cinco años, lo que hace que las ocasiones de entablar relaciones sexuales de tipo casual sean mayores que en una colectividad pequeña.

Uno de los elementos que conlleva la civilización es el desmoronamiento de antiguas costumbres y tradiciones populares. Los vínculos familiares se vuelven mucho menos estrechos y la naturaleza misma de la ciudad hace que la cantidad y tipo de vigilancia que se puede ejercer sobre los muchachos sea mucho menor. Los padres han de hacer frente también a la competencia de fuerzas sociales conflictivas. Los casos de

sífilis en jóvenes entre los 15 y los 19 años en Los Angeles han aumentado casi siete veces en los últimos cinco años.

La porción más considerable de aumento de los casos de sífilis registrados en Los Angeles la constituyen casos de homosexualismo masculino. En las zonas urbanas los homosexuales logran ser aceptados socialmente en sus propios grandes grupos, lo que significa que cuando la sífilis se introduzca encontrará una gran reserva humana.

El porcentaje per cápita más alto de casos de sífilis se registra en las zonas densamente pobladas de bajo nivel socio-económico.

Es preciso intensificar en todos los niveles las actividades educativas relativas a las enfermedades venéreas. El ataque inmediato contra la sífilis consiste en descubrir los casos tempranamente, en seguir el desarrollo de los mismos y en darles el tratamiento adecuado. En Los Angeles se están realizando visitas médicas y se han introducido asimismo los análisis de grupos.

MANY YEARS AGO, public health organizations were forced to approach education of the public concerning venereal disease with the utmost delicacy. Not only because of the social nature of the diseases, but also because of public sensitivity, the term "social hygiene" was used. Gradually, the public has become more sophisticated and we in public health have been able to be more direct and technical in our communication. Dramatic medical advances in diagnosis and treatment added to our inclination to focus upon the technical aspects of V.D. control.

Now, however, we seem to have completed the circle that was begun many years ago, by coming back to the realm of the behavioral scientist for some of our answers. We are returning to the old-fashioned concept of the social nature of the venereal diseases.

Today, the rising incidence of syphilis in modern urban communities should supply a very pointed reminder that we are dealing with a *social disease*. What are some of the factors in our burst of urbanization that make for an increase in incidence of syphilis?

I will use as my reference point the City of Los Angeles, California. In the last 10 years, its early syphilis case rate has nearly tripled. As the third largest city in the United States, Los Angeles' problems may vary quantitatively from those of other cities. Yet the elements of the problems are the same in all cities—not only in America—but in every other part of the world where the rapid pace of urbanization is exceeding our ability to plan for it and to cope with it.

Mobility

The first of these elements is mobility. In the typical Los Angeles family, neither husband nor wife was born in California. The average length of residence at one address is five years. This means that relationships with other people are also more transient, more temporary than in the smaller, more stable community. The breadwinner's work contacts are often entirely separate from the family's social contacts. The opportunities for forming casual sex relationships are infinitely greater than in the small community where everyone knows everyone else. There, the social structure contains rigid controls that are absent in the city.

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Dilution of Values

A concomitant element of urbanization is the breakdown of old cultural patterns and mores. The family becomes less of a tightly knit unit. The city itself dilutes the amount and kind of supervision that can be given children. Parents are in much less control of their children than in the small town setting. In attempting to teach their children and to instill values, parents face formidable competition with conflicting urban social forces. Some of this dilution of values may have contributed to the rising trend of teenage syphilis in Los Angeles. Among 15 through 19-year-olds, syphilis has risen nearly seven-fold in the past five years.

Male Homosexuality

Another example we see of changing cultural standards concerns male homosexuality. This, more than any other single factor, accounts for the largest portion of our increase in reported cases of syphilis in Los Angeles. If we are to accept the Kinsey formula for the numbers of male homosexuals in a given population, we must accept the fact that in a city such as Los Angeles there will be literally thousands of homosexuals. In the same proportion in small communities, homosexuals are in insignificant numbers. Reviled and scorned as individuals, they are totally outside the bounds of social acceptability. And so they migrate.

In the large urban areas, homosexuals build social acceptability within their own large group. In the city they find the opportunity to work at productive pursuits and to live as they wish without the rejection they faced where they were fewer and the community small. This social clustering creates a huge reservoir when syphilis is introduced. In the

Los Angeles City Health Department, all primary and secondary syphilis cases are thoroughly interviewed for sex contacts. Of 506 male patients so interviewed, one half, or 253 patients named male contacts exclusively. Less than a third named heterosexual partners only. The remaining 18% named both male and female contacts. Unquestionably the white male homosexual has replaced the female prostitute as a major focus of syphilis infection. This phenomenon has been duplicated in other urban centers.

Low Socio-Economic Areas

An older and more familiar facet of urbanization is that there seems to be a glamour about the large urban community which holds an attraction for the untrained, those with limited education, often those who are out of work, and too often, the malcontents, social misfits, and the deprived of every type. Many of these naively see the city as a place where the best fruits of life may be had merely by reaching out. The influx of these people compounds the already tremendous problems of the low socio-economic areas of the city. They heighten the density of already over-populated, low income neighborhoods, adding to the social and economic ills that were there before them. After their arrival, and after their Utopian dreams fade, they place an ever greater drain on the city's public resources: health, social welfare, law enforcement, fire protection, recreation, education and a host of others.

In our statistical analysis of disease patterns by population density and housing value, we find, not surprisingly, our highest per capita syphilis rates in the densely populated, low socio-economic areas.

Need for Education

How do we make an effective attack upon these problems? One of the most important is more educational effort devoted to the subject of venereal disease at all levels: Teachers need better preparation; children need to be better taught in these matters; parents need bolstering in their efforts to create healthy attitudes within their children; and medical schools need improved and expanded curricula in medical and public health aspects of venereal disease control.

Gaining acceptance of these as educational needs is often a long, complicated process, for many elements within the community must be brought along.

Epidemiology and Treatment

The most important immediate attack upon the problem of syphilis is early case finding, contact follow-up and treatment. In our business, it is axiomatic that all private physicians do not report all cases of venereal disease which they diagnose. We are concerned that those diagnosed receive proper treatment; but we are even more concerned that the undisclosed contacts are continuing to transmit their disease to others.

Work with Private Physicians

There is considerable evidence to indicate that physicians, generally, have not been sufficiently trained to do contact interviewing with syphilis patients. Particularly in the area of eliciting homosexual contacts—which are likely to be much more numerous than are those of the heterosexual—the private physician has had little to prepare him for such a task.

For this reason, with the cooperation of the County Medical Association, the Los Angeles City Health Department in 1960 inaugurated a routine physician visitation program, beginning with general practitioners. Each is sent a letter outlining our interest, enlisting his, and urging him to see the health department representative who will soon call on him. During the visits, pertinent information on venereal disease epidemiology and treatment, as well as the need for expert contact investigation is discussed. We try to get a blanket approval from the doctor for our investigator to handle contact interviewing of all of his future syphilis patients. However, we do request specific approval on each individual patient as well.

It is anticipated that all general practitioners will have been visited twice, and physicians of all medical specialties once by the end of June, 1963—roughly 6500 visits. While time-consuming, this activity is yielding beneficial returns in better understanding, cooperation, and case reporting.

Laboratory Reporting

Historically, one of the weak links in the epidemiologic chain has concerned reporting of positive serology by private laboratories. In most cities, reporting by these laboratories has been at best haphazard and incomplete; hence, follow-up has been equally incomplete.

One of the barriers to establishing an effective private laboratory reporting procedure seems to

be the fear that without prior approval of the physicians involved, reporting reactive serologies to the health department might be upsetting to the doctors and in turn lead to a loss of business for the laboratory.

In attempting to encourage voluntary reporting in Los Angeles, the health department carefully explained reporting procedure to laboratory directors, making a special point that no private patient is ever approached until his physician has been consulted. This, plus interpretation of the need for such reporting, has yielded an encouraging response.

Case Finding

The matter of the "paper increase" as an element in the rise in syphilis has not been mentioned previously in this presentation. I am certain all of you are aware that, when more intensive case finding is conducted, an increase in case rate is invariably reflected. In Los Angeles, it has been our good fortune for the past few years to have assigned an expert team from the Public Health Service. This group has been the instrument by which we have been able to assess our true syphilis situation.

In addition to the traditional methods of case finding, the "cluster testing" technique was introduced by this team, and is now an established part of the health department's case finding procedure. This procedure more than compensates for the additional time and effort required. In 1961 in Los Angeles, from 208 source cases, an additional 100 cases of early syphilis were found and brought to treatment as a result of the cluster procedure. These 100 cases would not have been found by traditional methods of follow-up.

Future Outlook

What can the large, growing metropolis look forward to in the future, in relation to the venereal disease problem?

While some behavioral scientists and city planners are attempting to find solutions to the ills of urbanization, others must narrow their investigation to the human factors of venereal disease.

The Task Force Report of Syphilis Control of the Public Health Service observes that: "There is a critical lack of knowledge of the characteristics, attitudes and habits of the venereal disease prone population. Behavioral research studies must be undertaken to improve interview-investigation to guide educational efforts to pave the way for success in prevention."

On the horizon we can also see a continuing struggle for funds to finance case finding, diagnosis, treatment, contact investigation and education. For governmental health agencies, this means a certain dependence upon public support for the program. In other areas of public health effort, such as tuberculosis control, strong voluntary local health agencies have been instrumental in building public support and in assisting in some program areas, notably education. Despite the need, there is no such strong local citizens' organization dedicated to social hygiene in most cities. It would behoove health departments to encourage their development.

Also, inequities in the balance of taxes on various governmental levels, coupled with unequal return to cities of these tax dollars means that in the foreseeable future, funds appropriated for local venereal disease control are not likely to be adequate to allow a saturation approach.

Finally, and possibly the most frustrating of all, is the lack of trained personnel. Even if we had the money, we might well face a dearth of talent to fill the necessary positions of venereal disease control officers, health educators, medical investigators, laboratory technicians and public health nurses.

Lest I sound pessimistic, I would like to close by saying that there is a dynamic quality about the large city which contains many forces for good. It is this attraction that makes people want to live in the city. Knowing that I am not going to change the pattern of exploding urbanization does not diminish my desire to live and work in the city. And I am convinced that if we "think urban" and utilize all of the public and private resources that are available for tapping in the city, we will find solutions to many of our disease problems, including that of syphilis.

Program for the Eradication of Endemic Syphilis

GIUSEPPE GASPARINI, M.D.

ABSTRACT

A campaign to eradicate endemic treponematosis has two aims: (a) alleviate the suffering of millions of people, (b) avoid the spread of this form into non-infected areas where it might become venereal.

It is impossible as yet to establish even an approximate statistic on non-venereal treponematosis, but several million people are infected.

To eradicate endemic syphilis would require the treatment of all infected persons with manifest or latent lesions, as well as all contacts, and the elimination of all possible causes of infection. Furthermore, the public health situation would have to be modified so that re-introduction of the disease would be impossible, and local habits would have to be improved, the standard of living raised, and public health education developed to avoid the spread of the disease. For many countries this would be a very difficult program to put in effect.

Some areas afflicted with endemic syphilis have a very low hygienic level, and this is the main factor favoring the spread of the disease.

The first step in eradicating endemic syphilis is the evaluation of the area, obtaining a clear idea of its hygienic conditions, public health organization, and whether there is any nutritional deficiency. The training of local personnel is important. The condition of the roads must be ascertained. A control center should be set up, and the area divided into districts. A serological campaign may then be undertaken, preceded by an effective propaganda campaign. The competition of local witch doctors is a problem. The team must also be prepared to treat other diseases. The standard medication is the PAM form of penicillin.

There is still a great deal to learn about endemic syphilis. The team must accumulate all the documentation it can as it goes along. The house-to-house method of covering the area is the most feasible.

After Total Mass Treatment has been accomplished, the campaign enters the consolidation phase. The area should be rechecked after no more than 6–8 months.

The efforts of the team will soon be compromised if hygienic conditions are not improved.

SOMMAIRE

Une campagne pour l'éradication de la tréponématose endémique a deux objectifs: (a) réduire la souffrance de millions d'êtres humains, (b) éviter la diffusion de cette forme de maladie dans des régions non-infectées où elle pourrait devenir vénérienne.

A l'heure actuelle il est encore impossible d'établir une statistique même approximative de la tréponématose non-vénérienne, mais il est certain que des millions de personnes en sont infectés.

L'éradication de la syphilis endémique demanderait le traitement de tous ceux qui sont infectés, avec des lésions manifestes ou latentes, ainsi que de tous les contacts, et l'élimination de toutes les causes possibles d'infection. En outre, il faudrait modifier la situation de la santé publique afin que la réintroduction de la maladie devienne impossible. Les habitudes locales devraient être améliorées, le niveau de vie rehaussé, et l'enseignement des principes de santé publique développé afin d'éviter la diffusion de la maladie. Manifestement, dans le cas d'un grand nombre de pays, un tel programme serait très difficile à mettre sur pied.

Certaines régions affligées de syphilis endémique ont un niveau hygiénique très bas, et ceci représente le facteur principal qui favorise la diffusion de la maladie.

La première mesure à prendre dans l'éradication de la syphilis endémique, c'est l'évaluation de la région, obtenant une idée précise de ses conditions hygiéniques, de l'organisation de son service de santé publique, et déterminant s'il y existe une déficience alimentaire. La formation d'un personnel local est importante. Il faut déterminer l'état des routes. Un centre de contrôle devrait être établi, et la région divisée en districts. Une campagne sérologique peut alors être entreprise, précédée, cependant, d'une campagne de propagande. La concurrence des médecins-sorciers locaux représentera un problème. L'équipe doit être à même de traiter d'autres maladies. Le médicament standard est la forme PAM de la pénicilline.

Il y a encore beaucoup à apprendre au sujet de la syphilis endémique, et l'équipe doit accumuler en cours de route une documentation aussi vaste que possible. La méthode de couvrir la région entière en allant de maison en maison est la plus efficace.

Après que le Traitement Massif Total a été exécuté, la campagne entre dans le stage de la consolidation. La région devrait être contrôlée à nouveau dans un délai maximum de 6–8 mois.

Les efforts de l'équipe seront bientôt compromis si les conditions hygiéniques ne sont pas améliorées.

RESUMEN

Varios millones de personas son afectadas ó están expuestas a la Treponematosis no venérea. La sífilis endémica se propaga de muchas maneras, por ejemplo, por las moscas, los vasos, jarros, etc.

Al comenzar una campaña de erradicación el area debe ser primero examinada para tener una idea clara de sus condiciones higiénicas y desarrollo y organización de la sanidad pública.

¿Está la población viviendo en comunidades permanentes ó tienen hábitos nómadas? Las autoridades médicas locales deben suministrar la información sobre la incidencia de sífilis endémica y las distintas enfermedades infecciosas. La deficiencia en la nutrición también debe ser considerada. Todas las manifestaciones, y su preponderancia en las diferentes zonas y las condiciones de las estaciones deben de ser conocidas durante las investigaciones preliminares.

Entrenar el personal local viene á ser una parte importante de la campaña. Se debe establecer un centro control o piloto.

El VDRL es el método serológico preferido hasta ahora porque es práctico, específico y sensitivo.

El equipo debe incluir médicos, enfermeras y técnicos; se debe establecer una farmacia e incluir algunos instrumentos médicos.

Se debe discutir algunos síntomas de la enfermedad.

Se debe prestar atención especial a las re-infecciones ó infecciones mayores. La medicina preferida para un tratamiento en masa sigue siendo el PAM. Más investigaciones deben de ser una medida de rutina para inspeccionar la población completa de una área.

Consejeros é inspectores de WHO, IUVDT y UNICEF deben de estar presentes en las areas de las campañas de erradicación.

LOOKING AT THE map of the geographical distribution of the non-venereal Treponematosis we can see that they are widely distributed in the world.

Under the classification of "endemic syphilis" are indicated those forms called in different places with different local names, such as Bejel, Njovera, Dichuchwa. These forms belong to the same family of the venereal syphilis and of the non-venereal Treponematosis which are endemic in Africa and America as Pinta and Yaws.

We know that their agents have the same characteristics, are very closely related in cross-immunity, are sensitive to penicillin in the same way and have many epidemiological factors in common.

The "unitarian" theory has a strong support from all the facts that we notice in the study of these diseases and the impression of Hudson "that the differences between the various forms of treponematosis may be of quantity rather than quality, of degree rather than kind" is felt also by many of us in our daily work in the endemic areas. To which extent the epidemiological factors may influence the pathology of all forms of syphilis, venereal or non-venereal, is also a problem of a great interest which we should try to solve.

I like to recall here the conclusions of Turner after his important research work on the treponemes collected from the different forms that they produce in the world:

> The outcome of the interplay between parasite and host over centuries in situations which differ in their physical and ecological characteristics has brought about not only modifications, however, slight and difficult to measure in the human host, but also modifications in the treponemes. Perhaps the most astonishing aspect of the situation is not that there are differences in treponemes, but that during the countless generations of straight-line descendancy, strains have survived in which these differences are so slight.

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The serological behaviour of the four groups of treponemes classified by Turner as S-Y-M-C did not show any difference with the TPA and the TPI tests.

Relation of Nonvenereal to Venereal Syphilis

A very interesting and important matter of discussion is the possible adaptation of the non-venereal form of syphilis to the sporadic venereal one.

The changing of habits, the improving of the hygienic conditions and other factors connected with medical and public health progress, together with the relaxation of the moral standards, and the bad aspects of emancipation, may be considered as contributing factors in the transformation of the form. The isolation and the poor living condition of some countries where non-venereal syphilis is endemic today, contributed to its resistance and survival. But in recent years the situation has changed in many areas; the new means of transportation, the interchanges between nations, trade increase, changing habits even in the less developed countries are modifying also the epidemiological aspect of this disease. Today venereal syphilis is increasing in the poor undeveloped areas and still we cannot say, in many cases, if the new form is imported from outside or is due to a new adaptation of the local non-venereal disease. We have to consider the possibility of a venereal transmission of a non-venereal endemic form. In this respect I recall that now we recognize the existence of the venereal tuberculosis. It may happen when the infectious manifestations of the endemic form have a genital localization, which is not rare.

Aims of Eradication Campaign

My opinion is that the areas where the endemic treponematosis is present have to be considered as reservoirs of syphilis. So the aim of an "eradication campaign" for this form are two: first to alleviate the suffering of millions

of affected people; second to avoid the diffusion of the form into the non-infected areas where it may become venereal.

We are not able to produce a statistic of the non-venereal treponematosis yet, even approximately, but we may say that several millions of people are affected or are exposed to infections of this nature.

If we want to go into the history of the non-venereal treponematosis we may say that these forms were common in Europe, Asia and America in the past centuries. Perhaps some was imported to Europe from the Caribbean area by the first Spanish sailors, as it is suggested by Gay Prieto for Bejel. The Morbus Gallicus and the Scottish Yaws of the 17th century, a similar form in Norway in the 18th century, the Spirocolon of Greece and Russia of the last century, a diffused form of non-venereal syphilis which spread among the Canadian Indian children in the 18th century, and, more recently, a similar form found in Chicago (1949), all belong to the same family of the non-venereal treponematosis.

Apparently there was some effective treatment in past centuries, and the disease was not then considered so dangerous. If we read the "Memoirs" of the Chevalier Casanova, who was the most outstanding playboy of the 18th century of all Europe, we find that once in a while he was forced to stop in some Hotel or Hospital "to cure a form of Syphilis". And this cure was apparently effective if he could soon resume his restless life.

We know that the endemic syphilis is diffused by many forms of contamination (flies, glasses, jars, contacts, etc.) especially among rural populations with low standard of living and nomadic habits. We must keep in mind this aspect of the disease when considering the problem of its eradication. T. Guthe, generally speaking of the treponemal disease in 1951, said: ". . . even an approximate estimate of the problem is sometimes not available to serve as a basis for planning control programs. Morbidity and mortality reports and survey data are incomplete or non-existent. Information on Yaws, Pinta and Bejel is largely sporadic."

Problems of Eradication

This statement is still true today for many areas where syphilis is endemic. When we have to face the problem of the "eradication" of the endemic syphilis in a given area we need to treat all the infected cases, with manifest or latent lesions, to treat all the contacts and to eliminate all the possible causes of infection. We should also modify the public health situation of the area to such an extent that the reintroduction of the disease becomes impossible, to insure the improvement of local habits, standard of living and public health education to a point where the spreading of the disease can be avoided.

We all well know that for many countries this is still a very difficult task. Even today that we have such powerful weapons to combat this form we find it very difficult to eradicate it completely from an area.

"The medical history has no example yet of an infectious disease having actually been treated out of existence" (Guthe). This statement has been repeated for years and it is still true today. In England not long ago the eradication of tuberculosis was announced. In this case the campaign was performed with a tremendous economic effort, in a civilized country where the standard of living and the public health education are at a high level, and certainly the operation is by no means ended as a continuous supervision has to be maintained to avoid the introduction of new cases of infection. Malaria was also successfully eradicated from some areas. But we know that the vector eradication is the key to the solution of this problem, while the standard of living of the population and their public health condition are not of capital importance.

Low Hygienic Conditions

For endemic syphilis the situation is entirely different. Some of the areas where the disease is present are still at a very low hygienic level and this condition is the main factor which favors its diffusion. In most of these areas the Public Health Departments are disorganized or non-existent so that any kind of data on the population is either not available or unreliable. Vital statistics, migrations of population, school organization, etc., are completely not recorded. In some countries even the frontiers are ill-defined, and where the population has nomadic habits any kind of survey, campaign, or resurvey would be valueless if we seriously intend to attain the eradication of the disease. There is no way to keep under medical control a nomadic or semi-nomadic population. We have to combat ignorance of all the most elementary principles of hygiene and also distrust against any kind of approach by strangers.

Mass Treatment Campaign

If we want to succeed against endemic syphilis we must be aggressive in the strongest way

and try to reach the most part of the population with the most effective and fast massive treatment. Acting in this way our operation also will be far less expensive.

Evaluation of the Area

Substantially the measures for the eradication campaign against all forms of non-venereal treponematosis are similar. It will be easier to localize and treat a "Pinta zone" while it will be more difficult to operate in a Yaws or a Bejel endemic area. However the methods to be followed are the same.

When planning the eradication campaign for endemic syphilis we must first of all proceed to the evaluation of the area and have a clear idea of its hygienic condition and of its public health organization. We must know if the population is living in regular permanent communities or have nomadic or semi-nomadic habits. The campaign will have a different approach in the two cases.

The district medical authorities, if any, should furnish as much information as possible not only on the incidence of the endemic syphilis but also on the different diseases especially of the infectious type. We must also evaluate if there is any nutritional deficiency in the area and in this respect we may seek, possibly, the cooperation of the F.A.O.

During the preliminary survey we should be able to have a clear picture of all the manifestations, of their prevalence in the different zones and of their seasonal pattern. This is important because the treatment campaign has to be planned in accordance with the periods of the highest incidence of the disease.

In the areas with permanent population the team for the evaluation survey should have a Specialist with dermatological experience, an Administration Expert, a Public Health Expert and a Sanitary Inspector. Their training must be by the standard of the TCP (Treponematosis Campaign Program) of the WHO.

The first information about the disease and its epidemiology has to be obtained, when possible, with the cooperation of the Health Officers of the District who can also be of a great help during the following phases of the campaign. This is the most practical way to obtain the good cooperation of reliable people in a work which is full of responsibility and difficulties.

Besides in this way we have competent persons stationed in the area in the periods between the surveys, who will give the most valuable information on the facts concerning the campaign, as the new cases, the migration of the members of the community, etc. This is also the best way to maintain the contacts with the populations as these Officers are speaking the same languages and are adapted to their customs.

Training Local Personnel

The training of the local personnel is an important part of the organization of the campaign. I would say that it is of capital importance, as these persons will stay in the area after the campaign is over and with the experience of years in the specific field of the endemic syphilis they will be the best experts for the permanent medical supervision.

Demonstration in the clinical and in the laboratory work should be conducted in proper centers; training in nursing, injections, medications, record keeping, etc., have to be held for two or three months, with examination for qualification and experimental field work.

Establishing Control Centers

In accordance with the importance of the campaign it will be of a great help to establish in the area a control or pilot center, especially in those zones of high endemicity, where the early clinical cases are more numerous and all the aspects of the disease are more evident. In these centers the personnel will receive the best instruction and training. These centers may also become permanent under the direction of the local experts.

We have to know the condition of the roads in order to decide which will be the more suitable means of transportation.

If maps are available the area has to be divided into districts or sections which will be numbered and whose survey will be conducted in regular progressive turn moving gradually from a central point to the surrounding villages.

Laboratory Centers and Procedures

When laboratory centers are present they have to be inspected in order to evaluate their organization and their capacity for the serological demand of the campaign. Other mobile Laboratories may be planned to speed up the serological survey if the permanent ones are not sufficient.

This part of the organization is important especially when we intend to conduct a serological campaign which is obviously more complete than the clinical campaign. In an eradication program, when we intend to perform a Total Mass Treatment, the serological diagnosis is

not so important, but when we decide to perform a serological survey, as we can do in the more developed and low endemic areas, the serological screening represents the only way to detect the latent cases.

The serological assay may also be used during the evaluation survey in order to have more data, besides the prevalence of the early infectious cases on the consistency of the endemicity and consequently we may be able to make the best plan for the campaign.

The method of choice so far is the VDRL (serum flocculation reaction) because it is practical, specific and sensitive.

If the facility for the TPI test could be available for a field work it would be the most desirable, but there are still too many difficulties to overcome in order to bring the TPI test into the standard procedure of a campaign. Any effort for the solution of this problem will be of a great help.

In some areas we will find it very difficult to withdraw blood from the patients. Sometimes we may find it easier to have blood from finger puncture than with vein puncture, especially when we have to examine more children than adults. The Laboratory Technician must use the most suitable method in the different circumstances.

The serological results will be recorded as qualitative or quantitative, if we want to have an indication of the epidemiology of the area or if we need to compare the result of the treatment. The titres will be compared at the re-survey after a period of no less than 6–8 months. And in the re-surveys the serological examination will be very useful for the detection of the new latent cases.

Effective Propaganda Campaign

A campaign has to be preceded by adequate propaganda which will try to explain to the population the danger of the disease, especially for the children and to obtain full confidence in our work. Even in the poorest countries we may try the radio for this purpose. The transistor era brought the radio into the most secluded places, in the forest and in the desert, where many people are listening, day and night, with the enthusiasm for a new discovery and a wonderful recreation.

However, in some very primitive places it is better to arrive unexpected as we may find still some fear for our presence and our activity, especially when there are local "witch doctors" with whose work and ability we are obviously interfering.

Epidemiological Information

In the inspection during the survey we must be particularly accurate in the examination among the children of the community, in the schools to evaluate the proportion of the infected children in the different villages.

We know that the percentage of infected children and of early infectious cases usually is directly proportional to the spreading and flourishing of the disease. The survey into the family group is also important and must be accurate as here we may have more indications on the epidemiology of the disease. The accurate anamnesis, when possible, may indicate which member of the family was infected first and so we may have the possibility to detect the focuses and follow the contacts.

Makeup of Campaign Team

Many suggestions were given for the composition of the team for the treponematosis campaign. I think that we cannot fix a standard number of persons as we have to organize the team in accordance with the characteristics of the area, its population, the habits, and also the religion.

The team will be differently composed if the campaign will be clinical or serological. It will be different also if the gathering method will be preferred, which is more practical, if accurately organized, or if we will proceed with the house-to-house method which will take more time and will be connected with some of the habits of the community, but which is the only one to ensure the highest coverage and the good success of the campaign.

In the team there should be two Physicians, one of them of general or tropical Medicine. We must expect to treat not only cases of treponematosis and we cannot refuse to take some care of patients affected by other diseases, surgical or medical. It will be of a great help for the appreciation of our campaign to give some treatment to all the patients who come to us, while a reason for a refusal will never be understood and will bring certainly, especially in some areas, a resentment toward the work of the team.

For this purpose we must have our Pharmacy furnished with some medicament for the most common diseases and have with us some surgical equipment.

The team will be composed of a Laboratory and a clinical section with Nurses and clerks in the appropriate number. There will be

drivers and cooks and servants when the accommodations for the team will require them.

It is essential to have two or more female Nurses. The examinations will be easier in those areas where the women do not accept to be examined by men. Besides the female Nurse knows better how to approach the children.

Administrative Details and Procedures

During the campaign a severe continuous supervision at any level is necessary as we must consider that an eradication campaign has to succeed or will be useless, so each member of the team and each operation must be fully efficient.

Considering the means of transportation we should have light trucks and possibly one ambulance. We must expect to find cases which need to be transferred immediately to the nearest treatment center. In those areas where the local public health services are not organized we have to face also this possibility.

All the supplies the team may need, all the equipment, have to be organized early in advance. It is recommended to have a good mobile sterilizing unit for the field work.

However, any team, even the best organized, cannot expect to be auto-sufficient all through the campaign. A continuous connection has to be maintained with the organizing center where the progressing and the necessities of the team will be constantly considered.

In the house-to-house method of survey the inspection may be done only when the men of the family are at home. We know how impossible it is in a Moslem country to be admitted in a house where there are only women and children. This method also has to be recommended only in that time of the year when the population is not out for work.

In those areas with census data available there will be less difficulty in keeping regular files of each patient through all the campaign. Where there is no regular record of the population we must have a filing system for family group or tribe group. Metal or plastic numbered discs may be given to recognize those members that we intend to re-check in the re-surveys.

Even doing so we cannot expect much cooperation from the members of the nomadic tribes. In these cases we have to perform only clinical surveys and TMT (Total Mass Treatment) trying to inject the largest part of the population especially the children.

It is particularly in these cases that we may use the mass treatment as the prevention against the disease following the doses suggested by the WHO in the report VDT/138.

We must consider that in some primitive areas the campaign itself may represent the first chance for the census of the population and our reports will furnish the first reliable data to the local Authorities.

Special forms will be used for the recording of the cases, as suggested by the WHO. More space should be left in the forms for the history of the disease. A record also will be kept of the characteristics of the area, of its altitude, humidity, seasonal aspects.

It will be a good policy in some areas if the team and the work will be organized in such a way that the treatment be given just after the examination on the same day. To invite the patients to come back next day or after the results of the serum diagnosis will be known it means to miss a good number of persons.

The members of the team have to be very familiar with the lesions which are characteristic of the endemic syphilis and give some description of them, not only a simple indication of localization (skin, mucosa, bone, etc.). Some of the manifestations of the disease are not definitely typical and on the other hand there are so many aspects of the skin or bone lesions, for instance, that we must try to give of them the most accurate description. The most interesting manifestations should be recorded by photography.

Need for Complete, Accurate Survey Data

I do not intend to discuss here the pathology of the endemic syphilis; however I want to recall some of the features of the disease for which we must be on the look out.

We have already a satisfactory nomenclature of Yaws, but that of the endemic Syphilis is still uncomplete. Sometimes the pleomorphism is one of the characteristics of this disease in some areas.

Generally the primary lesions of the endemic syphilis are difficult to be detected, while the first evident manifestations belong to the secondary phase. In an endemic area any kind of dermatitis has to be suspected. It may belong to the secondary or to the late stage of the disease. Very often a superimposed skin ailment is concealing the real form and the diagnosis is difficult. Sometimes a dyschromia of various degree is a feature which may be localized in any part of the body. In some areas (Yemen) vitiligo is also frequent in small spots or symmetrical, sometimes in such a distribution to induce to the diagnosis of Pinta. Hyper-

keratosis of the palms and soles may be also frequent, no different from the form we use to see in Yaws.

A particular form of tinea-like infection of the scalp I noticed among the children of some areas (Yemen). It seems to be the same which was described as "Witkop" by many authors (McArthur, Murray, Mitchell, Robertson, Fraser, Wilson, Marshall) as a form of non-venereal syphilis or related to it. Fraser thinks it is a favoid condition common in syphilitic children and does not believe it is contagious. I noticed this form in the 60% of the school boys of Taiz and I have strong suspicion it can be easily transmitted. The penicillin therapy was highly effective.

Some of the late lesions are of the destructive type, mostly with ulcers of the naso-pharynx or of the skin and bones. We know that some of these clinical features are similar or very difficult to be differentiated in all the non-venereal treponematosis. We must admit that it may be very difficult to make a correct differential diagnosis in front of lesions which are common to the different forms. Sometimes the diagnosis is made only on the base of the epidemiological knowledge of the areas. But how many times are we doubtful? Which are the factors influencing the features of a form to appear like those of other diseases of the same family?

Hudson said that ". . . none of the epidemiological and ecological factors have yet been evaluated in relation to treponematosis, and through the world there are all variations of these 'unknowns' producing an infinite number of combinations."

So all the unusual manifestations of the disease encountered in the campaign must be described and reported. The Inspector has to forget his personal point of view on the disease. He must be the most accurate relator of everything he observes during the campaign. He will express his personal judgment to the Committee of Experts who will evaluate all the data and will take the necessary steps for the further examination and research on the different problems.

About the non-venereal forms of syphilis there is still so much to be understood and we need all the possible elements to complete our knowledge.

Reinfections and Superinfections

Particular attention has to be paid to the still unsolved subject of the re-infections and super-infections. The accepted theory is that, after the first infection, the majority of the patients recover spontaneously of the manifest lesions and become latent.

Some of the patients, however, when in contact with a new early infectious case, may become re-infected or super-infected and, due to the sensitization received with the previous infection, they will show their allergic reaction with the typical lesions of the tertiary phase of the gummatous or of the osteo-periosteal type. The immunity acquired with the first infection will protect them against the manifestations of the secondary phase, while their tissues will be sensitized for the lesions of the tertiary phase (Grin).

For this reason in those areas where there is a high incidence of early lesions, there should be also a great number of tertiary cases which have to be considered as super-infections. The frequency of these cases may represent an epidemiological index of the area (Grin). The super-infection may occur without lesions at the port of entrance, which is called asymptomatic infection. Magnuson and Rosenau explain the asymptomatic re-infection with a partial immunity which, if it is able to destroy part of the inoculated treponemata, is not sufficient to prevent the reaction of the host in his allergic phase.

During a campaign it is therefore important to recognize and classify the recurrences of the forms. Reinfection and superinfection are two things well defined with a different significance. The reinfection occurs in the person who has completely recovered from the disease, and the new form will repeat its characteristics from the beginning. The superinfection occurs in a person who has not completely recovered from the previous infection. The persistency of a certain degree of immunity in this patient, which should be responsible for the typical new manifestations and which we are not able to evaluate yet, means that the patient is still infected. We cannot talk of reinfection if we do not notice the reappearance of the first sign of the disease and if the disease does not represent its characteristics.

During the campaign in the different places for the different forms of treponematoses, we have no record of the reappearance of the initial manifestations. The reappearance of the tertiary forms have to be considered as a superinfection. If we notice during a survey a superinfection in a treated case, we know that the treatment was not sufficient. For this reason during a campaign it is important to follow the behaviour of the forms after the TMT,

modifying and reinforcing the treatment in those cases not responding clinically or serologically.

The mechanism which involves the reinfection, the superinfection, the asymptomatic infection, the partial immunity, the sensitization, etc., is part of the problem which still has to be solved. When we will be able to evaluate the degree of immunity of a patient toward a form of treponematosis, by serology or by any other test, as Moore, Guthe, Thomas and others did emphasize, and when we will be able to produce an artificial immunity against the treponematosis, the campaigns for these diseases will have an entirely different aspect and we will be really near to the point of their complete eradication.

I am talking of treponematosis in general and not only of endemic syphilis as when we are discussing of Yaws, Bejel, Njovera, Dichuchwa, Pinta we are more or less speaking the same language and of the same subject. Any solution of the problem for one of these diseases will be the solution for all the treponematoses.

Classification and Treatment of Cases

The classification of the cases of endemic syphilis will not be different from the classification of the other non-venereal treponematosis as the WHO Experts suggested so far. The cases may be divided into five main groups:

1. *Active cases*—with manifest lesions. This group may be divided into two categories:
   a. Infectious: all recent lesions (early lesions).
   b. Non-infectious: long standing, dry and closed lesions (as hyperkeratosis or hyperostosis)—(late lesions).
2. *No-active cases*—with healed lesions. Some of these may belong also to the n.4 as contacts and have to be considered and treated as latent cases.
3. *Latent cases*—Infected persons with no manifestations yet or healed persons who may show relapses in the future (only recognizable by serum diagnosis).
4. *Contacts*—This group also may be divided into two categories:
   a. Persons non-infected yet in a group with cases of the disease (mostly children).
   b. Healed persons.
5. *Non-Infected persons*—Some of whom however may be contacts.

Using this classification it is obvious that only a little percentage of the group n.5 does not need treatment. It will be a good policy to treat the non-infected persons, even if they are not contacts, with a preventive dose.

The classification will give us an indication of dosage, but the treatment has to be total or as close as possible to the total, especially in those areas where we cannot expect to re-check all the population at the next re-survey (nomadic or semi-nomadic populations). To decide the extension of the treatment on the base of the percentage of the active and latent cases, which are difficult to detect, is not practical and may be unsafe. Even a few latent cases left behind us untreated may originate a focus for the diffusion of the disease and spoil all our work.

I recommend for the TMT campaign the treatment dosage suggested by the Experts of the WHO (Hackett & Guthe):

Group 1, a and b:	Adults	=1.2 m.u. (4 ml of PAM)
	Children	=0.6 m.u. (4 ml of PAM)
Groups 2, 3, 4, 5:	Adults	=0.6 m.u. (2 ml of PAM)
	Children	=0.3 m.u. (1 ml of PAM)

The medicament of choice is still, for a mass treatment, the PAM (Penicillin Aluminum Monostearate) responding to the standard requirements fixed by the WHO: 300,000 Units intramuscular dose of the drug has to maintain the penicillin blood level of 0.03 Unit per ml for a minimum of 72 hours. It is ready, easy to apply and effective.

The Benzathine Penicillin in oil and aluminum monostearate in gel is also available now. The use of this preparation would be much desirable as it has double effect than PAM, it keeps the penicillin blood level about twice the length of time that PAM does. Its initial blood concentration appears to be lower than with PAM, but the Treponemes are more sensitive to the length of exposure to penicillin than to its concentration (Guthe).

The current therapeutical technique to give the penicillin in a single dose is effective in most of the cases. However we don't have to expect a prompt response to the standard dose in some of the cases with extensive long standing skin destructive lesions or bone lesions, especially in adults. The dose has to be repeated sometimes and this procedure of keeping under control and re-treat those patients that we expect to be slow-reacting to treatment is a serious problem in the conduct of the campaign.

To keep the entire team in the zone until the patients are all showing their reaction to treatment is not practical. A small group of Inspectors may control the zones already checked at very short intervals, keeping a close contact with the center of the operation and repeating the treatment when necessary. Obviously this

practice will be much easier in those communities with stable population than in the zones with nomadic tribes.

Consolidation Phase

After the Total Mass Treatment (TMT) is accomplished the campaign enters in the consolidation phase. After a period of no more than 6–8 months all the area should be rechecked. The new infectious cases have to be detected: those introduced from outside, those who were recorded as latent at the first inspection and became infectious, those not reached by the TMT or those who became re-infected. Again the house-to-house method has to be preferred, following the data of the first survey. Again the highest part of the population should be examined.

In the re-survey the serological investigation is of great help for the control of the results of the treatment. However we must realize that the evaluation of the serological data is not easy as we know that sometimes the serological response to treatment is not so prompt and may be different from patient to patient. Besides a positive reaction after treatment does not mean that the patient is still infected and we are not able to evaluate his degree of infectiousness.

A persistent positive serum reaction with no increase in the titre may be considered as a permanent scar left by the disease. Also it is not possible to judge if the treatment was not successful in some patients who may be superinfected.

Even in the treated cases the superinfection may occur and would depend on the degree of immunity acquired by the patient with the early infection, immunity which would be directly proportional to the length of this infection, before the treatment, and also would depend on the extent of the exposure to the contact with new cases and so to the chance for the superinfection.

This is the theory suggested by Rein and Kitchen (1952). If so it is clear that the success of an eradication campaign will depend on the intensity and the extent of the treatment and on the constant control of the new infectious cases.

For this reason I consider the routine resurveys so far suggested not sufficient for the purpose of an eradication campaign. The surveillance over the population has to be constant for the detection and the immediate treatment of the new infectious cases. Especially in those areas where we cannot rely on the efficiency of the local medical organization we have to maintain a certain number of experts for a continuous active control of the situation.

We may consider the re-survey as a routine measure for the inspection of the entire population of an area, and its achievements will be much more satisfactory if the team will receive the exact indications on the new aspects of the disease by the permanent inspectors.

It would be also desirable for a severe control at the frontiers of the area, as the experience of other campaigns tells us that the highest percentage of the new cases encountered in the resurvey are re-introductions of the disease. (Haiti). For many areas however this is still an impossible measure.

How many re-surveys will be necessary for the complete eradication of the disease? In a country with an efficient local medical organization to which the team will commit the final phase of the campaign, the re-surveys may go on until a constant progressive reduction of the active cases is noticed. However in those areas where the local public health organization is not existing or is not properly organized, the experts have to be present and take care of the situation until the complete extinction of the disease.

The efforts even of the most efficient team will be soon compromised if we will try to eradicate the endemic syphilis from an area without improving its hygienic condition, and in some places we have to create the concept of hygiene from the beginning.

Conclusion

What are we leaving behind us when we leave the area after the campaign?

The situation will be different if the local medical service is efficient and is prepared to complete the work of the team, to improve the hygienic condition of the country, promoting a Public Health Education program. Also the suggestions given by the Specialized Section of the WHO and by the IUVDT will be followed with the greatest profit. But unfortunately endemic syphilis is mostly a disease of a country where the public health service is not organized, where there is no knowledge of the problem and nobody is prepared to face it. These are the still neglected places where we should concentrate our efforts.

We have to consider that in some poor developed areas the population wants to have a

quick cure for their diseases, but they will hardly understand why they do not have to use the same jar for drinking or why they cannot sleep together, without removing their clothes for months, or why they have to struggle to get rid of the flies whose danger they will never realize. And no one is teaching them the way to improve this condition.

We all know very well that the curiosity and the enthusiasm for an examination and for an injection has often a very short duration in most of the rural primitive people, and once that they can see that their sores have disappeared they do not understand why they have to be re-examined or why a sample of their blood must be taken.

Some of us unfortunately know from personal experience that in some places the publications and the communications of the WHO, of the IUVDT and of the UNICEF which are costing not only money but represent the hard work of eminent persons, are left unopened and are disregarded, because no one can read them, or can understand them or is not interested in them.

In these conditions all the efforts to organize voluntary non-governmental agencies, so useful and so efficient in other places, will be impossible.

Any attempt to develop a desire in the population to improve their hygiene and well being, as suggested by Clark, Tuller, Richman, Canaperia, and others, will be useless if we are not in close contact with the people.

For this reason the WHO, the IUVDT and UNICEF have to be constantly present, and I mean physically present, with their advisors and inspectors, in the areas where we intend to operate an eradication campaign.

Only in this way the efforts of these Organizations will reach the substantial aim of their program.

Program for the Eradication of Yaws

GUILLERMO E. SAMAMÉ, M.D.

ABSTRACT

When faced with the need for eradication of yaws, public health administrators must make a preliminary analysis of the situation before proceeding to detailed planning and implementation of the program.

First, it is necessary to conduct prevalence surveys in order to confirm suspected cases. Then it will be possible to state the true extent of the problem, its geographical distribution, the concentration of cases and other information needed to plan intelligently an eradication program.

It is essential during the prevalence survey to discover certain facts such as family composition, age groups, types and kinds of community living, crowding in dwelling units, and the holding of market days. It is necessary to know the habits of the people in order to plan adequately either the house visits or mobile clinic dates.

Program costs will vary from one country to another. However, in estimating costs of a yaws eradication program care should be exercised never to underestimate the total amount. Otherwise, government appropriating bodies may be tempted to cut off the program when it reaches the crucial stage of surveillance and consolidation by being unduly optimistic due to the rapid reduction in the number of cases.

In addition to the Ministry of Public Health, cooperation must be obtained from many other national and local agencies: the Census Bureau, the Armed Forces, the clergy, all communications media, and private organizations.

Resolutions have been approved by the Pan American Health Organization and the WHO recommending that the eradication of the treponematoses be actively pursued. National health administrations must take these international commitments into account in order to convince their legislative bodies that eradication programs should be properly organized, financed, and executed.

In the absence of rural health services the yaws eradication service must be maintained for many years after eradication of the disease. Surveillance and consolidation activities may be integrated with other health work, such as immunization programs against the most prevalent diseases.

SOMMAIRE

Les administrateurs de la santé publique qui se trouvent confrontés avec la nécessité de faire disparaître le pian doivent procéder à une analyse préliminaire de la situation avant de passer à des plans de détail et à la réalisation du programme.

Il faut d'abord faire des enquêtes sur la fréquence pour obtenir confirmation des cas soupçonnés. Il sera ainsi possible de constater l'étendue réelle du problème, sa distribution géographique et autres données nécessaires à l'élaboration intelligente d'un plan de suppression.

Au cours de l'enquête de fréquence, il est essentiel de découvrir certains faits tels que composition des familles, groupement par âges, types et modes de vie communautaire, entassement dans les unités d'habitation, jours de marché. Il est nécessaire de connaître les coutumes de la population pour projeter les visites à domicile ou les dates des cliniques ambulantes.

Le coût des programmes variera d'un pays à un autre, mais dans l'évaluation du coût d'un programme de suppression du pian il faut avoir soin de ne jamais sous-estimer le montant total. Autrement, les services gouvernementaux chargés de l'allocation des crédits peuvent être tentés de mettre fin au programme quand il atteint le stade critique de surveillance et de consolidation, par suite d'un optimisme créé à tort par la réduction rapide du nombre des cas.

En plus du Ministère de la Santé Publique, il faut obtenir la collaboration d'un grand nombre d'autres organisations nationales et locales: Bureau du Recensement, Armée, clergé, tous les organismes de diffusion, et des organisations privées.

L'Organisation Sanitaire Panamérieaine et l'OMS ont approuvé des résolutions recommandant la poursuite active de la suppression des trèponématoses. Les administrations nationales de la santé doivent se servir de ces engagements pris au niveau international pour convaincre leurs corps législatifs de la nécessité d'organiser, de financer et d'exécuter de bons programmes de suppression.

En l'absence de services d'hygiène ruraux, le service de suppression du pian doit être maintenu pendant de longues années après la suppression de la maladie. Les fonctions de surveillance et de consolidation peuvent être incorporées dans d'autres oeuvres sanitaires telles que les programmes d'immunisation contre les maladies les plus répandues.

RESUMEN

Cuando los personeros de la sanidad pública se enfrentan cona la necesidad de erradicar la frambesia, deben hacer un análisis preliminar de la situación, antes de continuar con el planeamiento e implementación de los programas.

Primero, es necesario conducir estudios a fondo para verificar los casos. Recién entonces será posible establecer la verdadera magnitud del problema, su distribución geográfica, la concentración de los casos, y cualquier otra información que se necesite para planear en forma inteligente un programa de erradicación.

Es necesario que, durante el estudio a fondo, se den a conocer datos, tales como la composición de la familia, grupos por edades, cómo es la vida en la comuni-

dad, congestión en las viviendas, y los días de mercado. Para hacer los planes adecuados, ya sean de visitas al hogar o para citas de las clínicas rodantes, es necesario conocer las costumbres de la gente.

Los costos del programa han de variar de un país a otro. Sin embargo, al calcular los costos del programa para la erradicación de la frambesia, hay que tener cuidado de no calcular de menos el costo total. De otra manera, los miembros del gobierno encargados de asignar el dinero, pueden muy bien interrumpir el programa en cuanto llegue a la etapa de vigilancia y consolidación, por estar demasiada optimistas debido a la reducción rápida en el número de casos.

Además del Ministerio de Salud Pública, debe obtenerse la cooperación de muchas de las reparticiones locales y nacionales, como ser: la Oficina de Censos, las Fuerzas Armadas, el clero, todos los órganos de comunicación y las organizaciones particulares.

La Organización Pan Americana de la Salud y la Organización Mundial de la Salud han aprobado resoluciones por las que se recomienda que se persiga activamente la erradicación de treponemas. Las personerías sanitarias nacionales deben tomar en cuenta estos compromisos internacionales para poder convencer a los cuerpos legislativos de que los programas de erradicación deben ser organizados, financiados y ejecutados en forma apropiada.

Cuando no hayan servicios de sanidad rural, se debe mantener el servicio para la erradicación de la frambesia por varios años después de la erradicación de la enfermedad. Las actividades de vigilancia y consolidación deben unirse a otros trabajos sanitarios, tales como los programas de inmunización contra las enfermedades más predominantes.

AS IN ANY other public health problem, when we face the urgent need for the eradication of yaws in a given country or group of countries we, as public health administrators and venereal disease specialists, have to make a preliminary analysis of the situation before we may go ahead with the detailed planning and implementation of the program.

What are the factors involved in such an analysis? We shall proceed to present below a brief outline of these factors:

1. Extent of the problem.
2. Epidemiological characteristics of the disease.
3. Administrative considerations.
4. Program costs.
5. Agencies and organizations involved.
6. Resources.
7. International commitments.
8. Final phases of the program.

Extent of the Problem

About 14 years ago, when the author became first interested in the problem of yaws and its eventual eradication, a preliminary but extensive review was made of the available literature, especially from the Americas. It was surprising that very little information could be obtained except for Jamaica and Haiti. Even in these two countries not enough statistical data was available to have really firm and reliable base-lines which could initially serve to adequately plan the activities and finally, to evaluate the results obtained in the program executed.

It is therefore essential to conduct prevalence surveys—time permitting—through the means of serological testing, clinical examination and extensive use of darkfield microscopy at the field level, in order to confirm suspected cases. Then, we might be in a position to more or less state accurately the true extent of the problem, its geographical distribution, the clustering of cases and other required information needed to intelligently plan a yaws eradication scheme. These data may shed light to determine the method to be used in the field operation, i.e. house-to-house treatment, ambulatory clinics, or a combination of both approaches at different times.

On the other hand, it is necessary to remember that in an eradication program, what we are really aiming at is the zero point and not at a simple, though dramatic, decline of yaws incidence rates. Later on, we shall come back to this crucial point of discussion.

Epidemiological Characteristics of the Disease

This area of activity is of foremost importance when planning a yaws eradication program. During the carrying out of the prevalence surveys it is essential to try to find out (discover) certain facts, such as family composition, age groups, types and kinds of community living, crowding in the dwelling units and the accompanying hygienic conditions, as well as the holding of market days. We know, on the one hand, that yaws is a disease spread primarily by promiscuity and crowding in family living conditions, whilst, on the other hand, it is necessary to know the habits of the population in order to plan adequately either the house visits or the ambulatory clinic dates. Haiti has been one of the cases where more socio-anthropological studies could have materially helped to solve the problem in less time than has been the case.

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It should be remembered that more research is required on the epidemiological factors associated with the spread of the disease. As an integral part of a yaws eradication program, it may be worthwhile to include a research unit, adequately staffed, to investigate and follow up some of these as yet unknown facts. It is our belief that the Indonesian yaws program has made some valuable contributions in this aspect.

Administrative Considerations

During the preparatory phase, in the planning, the elements dealing with personnel required, supplies, budget, financing and disbursement, are fundamental units of the overall scheme.

When dealing with malaria eradication in Mexico, in 1955, the Mexican Commission for the Eradication of Malaria and the Pan American Health Organization, Regional Office of the World Health Organization by a deliberate thinking process, came across the concept of "logistics." What we meant by that was simply the assembling at a given point and at a given moment of all the required elements (personnel, supplies, vehicles and the houses to be visited). Unless there exists a tight control and supervision, the administrative support will fall behind the technical work to be carried out and might be a major contributing factor to the possible failure of a program. This, we cannot afford under any circumstances.

Program Costs

This item will vary from one country to another, depending mainly on local salary scales, cost of supplies, freight charges and other such factors. But perhaps the most vital item besides salaries is the amount of duty travel involved. It cannot be too strongly emphasized that what we cannot see by ourselves cannot be visualized sitting behind a desk wherever it may be.

The frequency of field visits and the knowledge of the local terrain under all of its aspects, is costly but it pays full dividends and rewards to any public health administrator of experience and ability.

In calculating costs of a yaws eradication scheme due care should be exercised never to underestimate the *total amount* in terms of dollars and cents. In other words, the costs should include all the line items in all of the phases, i.e. the preparatory phase, mass attack and surveillance and consolidation. Otherwise, we run the risk of appropriating bodies in government having the temptation to cut off the program when it arrives to the crucial stage of surveillance and consolidation by being, at that particular moment, unduly optimistic due to the rapid reduction in the number of yaws cases.

Agencies and Organizations Involved

Since the yaws eradication program is a public health activity by definition it is required to be under the aegis of the Ministry of Public Health. The level at which this scheme should be placed in the administrative hierarchy is a matter again which varies from place to place. In some countries it may be placed—because of the importance of the spread of the disease—directly under the Minister of Health. In other countries, it might well be placed under the Division of Communicable Diseases. Regardless of its administrative level, the important factor should be that the yaws eradication activities be properly financed, and rapid and efficient administrative action may be taken at all times without the red tape so frequently found.

We have to seek and obtain the cooperation of many other national and local agencies: the Census Bureau, the Armed Forces, the Clergy, all communications media, private organizations and others from the very beginning, in order to be well prepared to start the mass attack, but still more important, to secure the active collaboration of the population in the last phases, when a few foci of infection would still remain.

Resources

In addition to the financial and budgetary factors involved, mention should be made of the personnel required to undertake this serious enterprise. Two categories of personnel are needed: (a) Senior and intermediate technical staff, suitably trained and indoctrinated in the philosophy and execution of eradication activities, and (b) Sub-professional personnel.

Insofar as the first of these is concerned, we may approach the problem from two angles. One, is to have specialized venereal disease staff with a reasonable knowledge of public health administration practices in the rural areas, or follow a second path—which may sometimes fail—to appoint public health administrators who have undertaken intensive but limited training in yaws. Here again is a question of technical personnel availability.

The sub-professional personnel are easier to recruit but more difficult to supervise. We are of the opinion that a pyramidal type of control

must be built if we are going to be successful. The goal of eradication will be met if proper procedures and techniques of supervision are put into operation.

Let us not forget that senior, intermediate and auxiliary personnel must be trained for the job to be performed, and re-trained at suitable intervals which will be determined by actual field experience.

International Commitments

In many world areas, such as in the Americas, resolutions have been approved by the governing bodies of the Pan American Health Organization and of the World Health Organization (for instance, the resolution passed by the Fifth Directing Council of the Pan American Health Organization in 1952) recommending that the eradication of treponematoses be actively pursued. Also, border type of agreements have been signed or discussed between governments aiming at the same objective.

Program for Eradication of Yaws

National health administrations must take these international commitments into account in order to convince their Legislative bodies that yaws eradication programs should be properly organized, financed and executed. Both the Pan American Health Organization and the World Health Organization are prepared and willing to meet requests of governments for advisory services during any of the phases of a yaws eradication program, be it for the planning, for the evaluation of the work or for any other of the various phases mentioned herein.

The cooperation of the Pan American Health Organization and of the World Health Organization is carried out by means of technical consultants, administrative methods advisors, fellowships and, in certain cases, by furnishing limited amounts of supplies. UNICEF, a body of the United Nations, is also ready to materially cooperate in these endeavors by providing supplies and equipment.

Final Phases of the Program

These are the most complex tasks to be performed. Once the mass attack has been completed and surveillance and consolidation must be started, practical and philosophical considerations come into play. The ideal situation is to have a country where rural health services are well developed. If this is the case, practically no problem will exist. After no autochthonous cases are discovered and eradication is declared, the responsibility for vigilance may be transferred and assigned to these existing health services. But, and this is the sad reality in the majority of cases, no such health services may be in operation or, if they do exist, these function under very primitive conditions. We have to face the administrative decision of keeping the yaws eradication service in existence for many years. Obviously, what may be done, is the integration of surveillance and consolidation activities with other health work, such as immunization programs against the most prevalent disease in that particular country.

But how are we to explain to the Legislative bodies of a government about the necessity of spending thousands of dollars in order to uncover a possible existing focus of infection even when carrying out other health activities? Public health administrators are still seeking for logical answers to this problem.

Summary

Basic factors to be taken into account in the planning and execution of yaws eradication programs have been presented.

Due consideration has been given to the orderly sequence of the various phases of an eradication scheme.

Mention has been made of the complex problems of consolidation and integration, where rural health services are still to be developed.

Program for the Eradication of Pinta (Spotted Sickness) in Mexico

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ABSTRACT

The disease known as pinta, or spotted sickness, has had a long and varied history in Mexico. It is a non-venereal, infectious, chronic, endemic, transmissible skin disease, caused by treponemas and characterized by four stages: (1) Initial stage, dermatitis; (2) Intermediate or secondary stage, colored spots, almost always some shade of blue; (3) Mixed stage, concurrence of blue spots and white spots; and (4) Late, or terminal stage, achromic, cicatricial, residual, irreversible white spots. It is infectious but easily curable in its early stages; in its final stages, it loses its infectious capability, but it is characterized by an irreversible dermatosis (white spots). There is apparently no natural immunity to the disease. It is transmitted both by contagion and by vectors, being easily transmittable in the early years, up to twenty-four years of age, after which age its transmittibility falls off. There are spontaneous cures. There are some cases of latent infections or of infections that have disappeared spontaneously.

A pinta eradication campaign has been instituted, under the direction of the Mexican Secretariat (Department) of Health and Welfare, not only for the clinical treatment of the disease, but also for the rehabilitation of great numbers of people suffering from the disease that is endemic in certain well-defined areas, especially in the depression formed by the Balsas River basin in the states of Mexico, Morelos, Puebla and part of Guerrero.

The disease has had profound psychological, social and economic repercussions, because great numbers of pintados, due to a stigma attached to the disease, isolate themselves in remote and often inaccessible communities. The personnel engaged in the eradication campaign must first win their confidence and friendship. This is being accomplished now quite rapidly. An attempt is being made to eliminate the effects of the permanent white spots, characteristic of the terminal stage of the disease, by equalizing their color with the normal skin color.

Clinically, the campaign is based on the fact that live sources of infection are eliminated by timely treatment which prevents sequelae. This treatment consists of administering 1,200,000 units of delayed action penicillin to actual patients and to people who have had intimate contact with the disease.

SOMMAIRE

La maladie qu'on appelle le "mal du peint" (maladie des taches) a eu au Mexique une histoire longue et variée. C'est une maladie non-vénérienne, infectueuse, transmissible, chronique, endémique, produite par des tréponèmes et caractérisée par quatre périodes: 1. Période initiale, dermatite. 2. Période intermédiaire ou secondaire, taches presque toujours bleues dans un des tons de cette couleur. 3. Période mixte, coexistence de taches bleues et taches blanches. 4. Période tardive, ou finale, taches blanches, achromique, cicatricielle, résiduelles, irréversibles. Dans les premières périodes, elle est infectueuse mais facile à guérir; dans les périodes finales, elle perd sa capacité infectueuse, mais elle est caractérisée par une dermatose irréversible (taches blanches). Il paraît qu'il n'y a pas d'immunité naturelle à la maladie. Elle est transmise autant par la contagion que par vecteurs, avec une transmission facile dans les premières années de la vie, jusqu'à l'âge de vingt-quatre ans, quand sa transmissibilité commence à diminuer. Il y a des guérisons spontanées. Il y a des cas d'infections latentes ou d'infections qui disparaissent spontanément.

On a établi sous la direction du Ministère de Salubrité et Assistance mexicain, une campagne d'éradication de la maladie des taches, non seulement pour le traitement clinique de la maladie, mais aussi pour la réhabilitation de grands nombres de personnes qui souffrent de la maladie, qui est endémique en de certaines zones bien définies, surtout dans la dépression formée par le bassin du Fleuve Balsas dans les états de Mexico, Morelos, Puebla et une section de Guerrero.

La maladie a eu de profondes répercussions psychologiques, sociales et économiques, parce que beaucoup de malades, à cause d'un stigmate qui accompagne la maladie des taches, s'isolent dans des communautés reculées et bien souvent inaccessibles. Le personnel de la campagne d'éradication a d'abord besoin de se gagner leur confiance et leur amitié. Cela arrive actuellement avec assez de rapidité. On est en train de faire une tentative de supprimer les effets des taches blanches permanentes qui sont caractéristiques de la période finale de la maladie, en égalisant la couleur de ces taches avec la couleur normale de la peau.

La campagne est fondée cliniquement sur le fait que les sources vives d'infection sont eliminées par un traitement opportun qui empeche les séquelles. Ce traitement consiste à administrer aux malades légitimes et à ceux qui ont eu des contacts intimes 1.200.000 unités de pénicilline d'action retardée.

RESUMEN

La enfermedad llamada el mal del pinto ha tenido en Méjico una historia larga y variada. Es una enfermedad no venérea, infecciosa, transmisible, crónica, endémica, producida por treponemas y caracterizada por cuatro periodos: 1. Periodo inicial, dermatitis. 2. Periodo intermedio o secundario, manchas casi siempre azules en alguna de las tonalidades de ese color. 3. Periodo mixto, concurrencia de manchas azules y manchas blancas. 4. Periodo tardio, o terminal, manchas blancas, acrómicas, cicatrizales, residuales, irreversibles. Es, en los periodos tempranos, infecciosa pero de fácil curación; en los últimos periodos pierde su capacidad infecciosa, pero se caracteriza por una dermatosis irreversible (manchas blancas). Al aparecer, no hay inmunidad natural a la enfermedad. Se transmite tanto por el contagio como por vectores, siendo fácil su transmisión en los primeros años de vida, hasta la edad de veinticuatro años, cuando comienza a decaer su transmisibilidad. Hay curaciones espontáneas. Hay algunos casos de infecciones latentes o de infecciones que han desaparecido espontáneamente.

Se ha establecido, bajo la dirección del Ministerio de Salubridad y Asistencia mejicano, una campaña de erradicación del mal del pinto, no sólo para el tratamiento clinico de la enfermedad, sino también para rehabilitar a grandes números de personas que sufren de la enfermedad, endémica en ciertas zonas bien definidas, sobretodo en la depresión formada por la cuenca del Rio Balsas en los estados de Méjico, Morelos, Puebla y una porción de Guerrero.

La enfermedad ha tenido profundas repercusiones psycológicas, sociales y económicas, porque muchísimos pintados, por un estigma que acompaña el mal del pinto, se aislan en comunidades remotas y muchas veces inaccesibles. El personal de la campaña de erradicación tiene en primer lugar que ganarse su confianza y su amistad. Actualmente esto ocurre con bastante rapidez. Se está haciendo un ensayo de borrar los efectos de las manchas blancas permanentes (pinto blanco), que son características del periodo terminal de la enfermedad, igualizando el color de estas manchas con el color normal de la piel.

La campaña se basa clinicamente en el hecho de que se eliminan fuentes vivas de infección con un tratamiento oportuno que previene las secuelas. Consiste este tratamiento en inyectar a enfermos legitimos y a contactos intimos con 1.200.000 unidades de penicilina de acción retardada.

IN MEXICAN RURAL medicine, pinta (spotted sickness) is one of the most colorful chapters, full of emotion and deep significance, in our country's medical sociology.

In spite of the existence of important unknown factors concerning its causal agent, the transmission mechanisms of the disease and the debated question of immunology in pinta and, in general, in treponematoses, the current eradication campaign has nevertheless been revealing epidemiological facts, which, once they have been properly verified and analysed, will guide researchers and which, of course, are already establishing on their own merit technical standards for this campaign.

This disease, whose origin in Mexico is lost in pre-history, is known to us through vivid episodes, in which people suffering from pinta have been considered in various ways, from admiration and envy to fear, scorn, gratitude, to complete oblivion.

Emperor Montezuma, powerful, elegant, and ostentatious, fond of vivid coloring, personally selected young athletic men, proud pintados, to bear him on a litter, amidst a display of precious stones, feathers and brightly colored clothing.

The conqueror, Cortez, describes people ill with pinta in his letters to Charles V as "tiger men" or *güinduris*, wild and untamed.

From 1787 to 1797, Alzate accuses them of all the calamities originated by a volcanic eruption, although he believes that the atmospheric disturbances produced could have had an influence on the appearance of the spots.

In 1810, those men, unjustly singled out, fought for the independence of Mexico alongside of giants of thought and action: Morelos, Guerrero, Galeana.

They fought in the *Reforma* movement at the side of Juan Alvarez (1857). A little later, the pintados formed by themselves an heroic battalion for the defense of Puebla, on the occasion of the siege of 1863.

Finally, in the Mexican Revolution, pintados entered the struggle and very many of them shed their blood for an ideal of equality and justice, which today has been won for a great majority of the people of Mexico.

In spite of all this, half a million people suffering from pinta would probably have to remain outside a program of social welfare (of social justice), whose benefits reach out through the length and breadth of the country and which is penetrating into the most abrupt, most isolated, most hostile Mexican rural environment, present day refuge for pintados, imprisoned by cruel psychological barriers.

The Government of the Republic created the "National Campaign for Eradication of Pinta", initiated in 1960, in behalf of those enormous groups of sick people, isolated in poor, destitute communities.

Thus a first epoch in the history of pinta in Mexico can be established, the origin of which

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is lost in pre-history; which has been known since the rule of the powerful Montezuma and which ends with a decree of the President, Adolfo Lopez Mateos.

The Campaign of Eradication

Well defined endemic areas, relatively easy recognition of the disease and the decisive effectiveness of penicillin on treponematoses constitute the fundamental elements of the fight against the disease. Youth brigades, properly trained, are penetrating into the rural environment, into the high lands, into the hot lands or the coastal regions. They must strike up a friendship, using many languages and dialects, with people whose attitude is changing from mistrust and resentment to the frankest cooperation and most active participation in a campaign with a specific, single objective: treatment of all people suffering from pinta with penicillin; that is, radical elimination of the live sources of infection, the very ones that have made an endemy last for centuries.

Nevertheless, the penicillin used in the campaign, effective, economical and, for the time being, well tolerated, is eliminating the early lesions of the disease, and these lesions, dermatitis and blue spots, include two-thirds of all those afflicted by the disease.

There is still left a group of people with white spots, estimated in proportions that vary from 25 to 50% of the total number of diseased people, as a souvenir of an endemy that existed in Mexico. This group, composed of diseased people who have banded together for years, would feel itself defrauded if it did not obtain benefits from the campaign.

It is estimated that the average age in the group of white pintados is 42 years (achromic lesions are noticeable beginning with the age of five). Therefore, according to the probable average life expectancy in Mexico, we shall probably have to wait many years for the disease to disappear completely.

For that reason, a program of experimental therapeutics for the treatment of the sequelae, by equalizing the irreversible achromic lesions with the normal skin color of the patient, has been added to the specific objectives of the campaign and to its subsidiary and collateral objectives. Thus, the physical, mental and social rehabilitation of the individual has been started.

Finally, at the present stage in the intensive fight against the endemy, there is a correspondingly active program of construction: a health center for each municipality, which will function permanently in caring for the disease that has produced profound changes in the psychological structure of the communities and which has so greatly offended man's dignity.

Pinta

By means of this document, a report is made to this honorable assembly, concerning one of health problems in Mexico: pinta, an old indigenous endemy, limited to the tropical and semitropical regions of the country, with an estimated number of 400,000 people presently ill with the disease. This means that there are, more or less, 100,000 homes directly affected by an endemy that is found in seven states in the Republic, with a total population of more than ten million.

The eradication campaign, scientifically planned and executed by personnel trained in various technical levels, has a single objective: eradication of the disease.

Pinta, a mild disease, constitutes nevertheless a definite impediment for large groups of rural inhabitants, who have been isolated because of their illness, in their progress toward their welfare.

It is a question, then, of a health campaign with deep psychological, social and economic repercussions.

We are reporting very briefly on the definition and classification of patients, and on the principal epidemiological aspects of the disease, reserving for the end a discussion of the various other principal aspects.

Definition and Description

Pinta is a *non-venereal, chronic and endemic treponematosical* disease. In general, all authors agree on its definition and description; nevertheless, some important characteristics are still under discussion, especially concerning the transmission mechanisms.

Considered by some as a *contagious* disease (direct transmission), for other authors it is *merely transmissible* by vectors.

With regard to the origin of the disease, exclusively American for some, or existing on other continents, to whether or not it is exclusively tegumentary, to the diagnostic difficulties, to its difficult differentiation with laboratory tests from other treponematoses and to problems of histopathology and other problems, relatively rapid advances have been made.

In any respect, the problem of the disease's immunology is still obscure.

For the eradication campaign, the following characteristics are emphasized: *an infectious*,

transmissible skin disease, caused by treponemes, characterized clinically by a *dermatosis of its own* and epidemiologically by two facts: *prolonged chronicity* and *high endemicity.*

Classification

The disease is not included in the 1961 *International Classification of Diseases.* Its inclusion was proposed, with patients classified into four groups, according to their clinical aspect:

1. *Primary period:* initial, immediately following the original occurrence; that is to say, incubation.
2. *Intermediate period:* hyperchromic, secondary characteristics, consisting of disseminated colored spots. This is blue pinta.
3. *Mixed period:* characterized by the concurrence of blue spots and white spots.
4. *Late period:* achromic, cicatricial, residual, irreversible, vitiligoidea; white spots.

In its first stages, the disease is infectious, but easily curable.

In its final stages, the disease continues to lose its infectious capacity, but the dermatosis is becoming irreversible.

The campaign is based on the fact that live sources of infection are eliminated by the specific treatment of the disease; timely treatment prevents sequelae.

In every definition of the disease, it will be necessary to emphasize the condition that gives the disease its greatest importance. It is a mild disease; nevertheless it induces, in the individual and in the group, mental disequilibriums and isolation.

We believe the concept of Dr. José Alvarez Amézquita, Secretary of Health and Welfare, to be exact when he points out the disease as a real psychological barrier that isolates whole groups, modifying their social structures, segregating them and making the benefits of a health and welfare program that is being carried to the entire rural environment of the country almost inaccessible to them.

Pinta Endemy

The accompanying information explains the principal epidemiological aspects of the endemy.

Distribution of Pinta in Territorial Extent

(*The speaker presented slides which indicated the pintagenic area of Mexico. Commenting on the slides, he noted: The prevalence of the disease in the lowest parts of the depression formed by the Balsas River basin, on both banks, is evident. Its frequency decreases as it ascends its slopes, and it can be noticed that the highest endemic indices occur from the southern part of the States of Mexico, Morelos and Puebla, to the mouth of the river at the sea, which it reaches in a long, tortuous bed, passing through an imposing and extensive mountainous region.*

In the State of Guerrero, the crest of the western Sierra Madre is a clear dividing line for the endemy: moderate endemic indices on the outer slope, toward the sea, and progressively increasing indices on the inner slope, toward the river.)

Distribution of the Disease in Pinta Localities

The infection occurs in up to 100% of the cases only in small localities, with one to five houses, and five to twenty-five people.

In larger localities, healthy families are found in disease-free houses and sick families in affected houses, in varying proportions.

When disease-free houses and affected houses are examined separately, it is usually found that there are larger families in the affected houses, according to the following averages:

6.2 people (average) per house with patients.

5.2 people (average) per disease-free house.

(*Using slides the speaker noted "a fact of the greatest importance: most of the times there is only one patient per house and the frequency of multiple cases is notoriously low in the entire pintagenic area.*")

Clinical Forms of Pinta

Originally, the campaign considered a patient suffering from pinta in three clinical forms from a purely clinical (dermatological) point of view: initial spotting, dermatitis; intermediate spotting, blue spots; and late spotting, white spots. The first 50,000 patients were classified and tabulated in that way.

Later, for classification purposes, four clinical forms of the disease were considered; first: initial spotting, dermatitis; second: intermediate spotting, blue spots; third: mixed spotting, with the concurrence of blue spots and white spots; and, fourth: late spotting, exclusively white spots.

Importance of the Classification

The early stages of the disease are the most active, and consequently the most infections. Hence the interest in looking very carefully for

dermatitis. Its treatment with 1,200,000 units of delayed action penicillin means elimination of live sources of infection.

Exclusively blue spotting is reversible. The treatment eliminates its infectious capacity and prevents sequelae.

In the mixed spotting stage, the earlier the treatment the fewer the irreversible sequelae.

White spotting, probably inactive, noninfectious, is nevertheless treated with penicillin as a safety measure.

Distribution of Clinical Forms

With patients suffering from pinta grouped according to their clinical form, our attention is called to the fact that, most of the times, the first group of patients, in the dermatitis stage, is much larger than the group of patients with blue spots. Even assuming a considerable error on the high side in the first group of patients and a sizeable error on the low side in the second of these groups, the difference between them is markedly significant.

Distribution by Sex and Age

The disease falls equally upon both sexes.

Dermatitis, the initial phase of the disease, rarely appears in the first year of life. Beginning with the age of four years, its frequency rises abruptly, reaching the peak of its curve in age groups between five and fourteen years of age. Beginning at that time, the morbidity curve decreases rapidly, reaching insignificant values in adult age and old age.

In localities with a higher endemic index, the dermatitis incidence curve rises and falls over a smaller number of years in the life span. There are localities in which, beginning with the age of twenty years, dermatitis is no longer found; in others, it continues to appear to a very small degree up to the age of forty years. On the other hand, in places with a moderate endemic index, the drop in the curve occurs more slowly.

Blue Spotting: The phase that we consider to be the intermediate, or secondary, phase of the disease, characterized exclusively by blue hyperchromatism, begins to appear at about three years of age, in a frequency that slowly rises until twenty years of age, beginning at which time a very slow descent ensues.

White Spotting: Terminal phase, cicatricial, irreversible, appears only at about four years of age. At about the age of nine or ten years, its rise begins in a marked ascending tendency.

Clinical Aspects

The observation of 73,914 patients has allowed us to make known, in previous reports, that the only coloring in the crisis phase of the disease is *blue* in its various shades for the patient in the early stages of illness; and *white* for the terminal stage.

A coloring that varies from pink to red is noticed only in the primary lesion, at its beginning, in view of its erythematous nature.

Later, during the long course of the disease, this type of occurrences can be observed, but in general the reddish coloring is observed only for very brief periods of time and most of the patients in the hyperpigmentation stage display only the characteristic dark blue coloring.

Effect of Penicillin

A large number of treatments with sodium penicillin has proved the inefficacy of the product, used in doses of 1,000,000 U.O., administered once only. It was effective only on the primary lesion.

With delayed action penicillin, 1,200,000 U. in one single dose, the dermatitis is cured in two weeks, average time, and the blue pigmentation begins a slow involution.

Up to the present time, this treatment, well tolerated (only one accident) and inexpensive, has shown itself to be effective, since, up to July of this year, 193,496 injections have been administered.

Field Work

The original program of the campaign has been carried out very strictly. Only two important amendments have been made:

First: Originally, mass treatment of pinta towns with high endemic indices; treatment of patients and contacts in towns having a moderate endemy. Exclusive treatment of patients in localities with a very moderate frequency of patients.

Later, in view of the limited epidemiological importance of contacts, in order not to expose them to the dangers of penicillin and for administrative reasons, the recommendation was made to restrict the treatment to patients and to those who have had only the most intimate contact.

Nevertheless, in practice and for the reason that it is not always easy to differentiate between patients and healthy contacts, the application of the drug has been relatively liberal.

Second: At present, two penicillins with prolonged action are used: penicillin with aluminum monostearate (2%), and benzyl

penicillin in a single dose of 1,200,000 units, one time only. Sodium penicillin, crystalline, used originally, was excluded.

The drug is used cautiously; the personnel are always provided with adrenalin, neoantergan and various antihistaminics.

Injection number 80,000, approximately, caused the only serious accident. In general, penicillin has been well tolerated, except for minor and infrequent accidents.

Results

Overall Effort, according to the original plan included:

States affected	7
Municipalities	136
Localities	7, 203
People to be examined	1, 437, 481
Patients	270, 000

Work Accomplished to Date, 1960–62:

Municipalities examined and worked	88
Localities	4, 373
Area worked (sq. kil.)	102, 735
Homes visited	58, 725
People examined	226, 976
House calls	139, 377
Injections administered	193, 496

Sociology

The change in attitude of the people with respect to their endemy and with respect to the personnel of the Secretariat of Health is noteworthy.

From mistrust and hostility, when the campaign began, progress is being made almost without exception toward agreement, cooperation and active participation in the campaign itself.

This attitude on the part of the people is permitting a wider diffusion in propaganda and health education, the accomplishment of small scale health projects (water improvement, installation of latrines, improvement of dwellings, and, above all, there is now noticeable cordiality and goodwill toward a health campaign, whose immediate results (cure of the patient) are very evident.

Attitude of the personnel engaged in the campaign: It is the function of the youth brigades to get to know and to make friends with the people. I clearly express my admiration and respect for them, for they display a true crusading spirit in carrying out the most important objective of the campaign—the elimination of the psychological barriers that have imprisoned the people suffering from the disease.

Rehabilitation

Dr. José Alvarez Amézquita added a complete program of rehabilitation to the original program of the campaign: the disappearance of the initial spots and the disappearance of the blue spots are not enough; it is not fair for one-third of today's pintados to have to remain marked with white spots for a long time. Consequently, research and experimentation are included in the rehabilitation program in order to try to improve the irreversible cicatricial lesions by equalizing their color with the normal skin color.

For Discussion

We propose five topics for discussion:

1. Transmittibility of pinta.
2. Mechanisms of transmission.
3. Spontaneous cure.
4. Unapparent cases.
5. Immunity.

1. *Transmittibility.* An examination of the almost exhaustive bibliography on the disease reveals that there are many authors who discuss the very difficult and slow transmission of the disease.

This view does not seem to be just, and it suffices to point out that large localities with infection indices up to 80% and higher are very numerous.

Based on evidence accumulated during the field work of the eradication campaign it can be stated that within the pintagenic areas of the states of Guerrero and Michoacan, the transmission of the disease shows two aspects, according to its incidence among the population with permanent residency: during the first half of the life span and especially up to before twenty-four years of age, transmission is apparently easy and rapid, since, by that age, 75% of the cases are in obvious evolution.

In the second half of the life span, the disease's incidence decreases significantly, and in many communities, after thirty or forty years of age, dermatitis appears only rarely. In this last case, the transmittibility of the disease can indeed be considered to be slow. On the other hand, outside of the endemic regions, its transmission is very difficult and almost impossible.

2. *Mechanisms of Transmission.* Authors are as much inclined toward direct transmission (contagious disease) as they are toward indirect transmission by vectors. They generally agree that both mechanisms are effective; nevertheless, some doubt and even refuse to accept one

or the other of the two possible transmission mechanisms.

In our practice, we find families in which multiple and simultaneous cases occur; it can be assumed that in these cases transmission is accomplished with vectors; but there are also families in which cases keep on appearing successively, producing an impression that transmission is accomplished by contagion.

The fact that in towns with a high endemic index many families remain untouched, in disease-free homes, or the fact that most of the times there is only one case in the family, does not favor the idea of difficult transmission, or throw light on the transmission mechanisms, or even much less on whether the infection occurred within or outside of the home. It induces one, rather, to think about immunity acquired by unapparent infection that occurred in the first years of life.

3. *Spontaneous Cure.* The disease begins with dermatitis, which is followed by blue spotting, ending with white spots; but attention is particularly called to the fact that the frequency of dermatitis, in absolute numbers and in relative figures, is so significantly greater than the group formed by blue spots. In most of the towns examined, patients with blue spots are very much below the expectancy curve. And, moreover, assuming the diagnostic error in the case of the dermatitis to be excessive and that, inversely, the error due to underestimation in diagnosing the blue spots is sizable, the resulting difference is still very significant. *The above-mentioned situation indicates, by itself, the occurrence of spontaneous cures;* it is admissible, nevertheless, to accept the idea of the regional epidemiologist that in this disease, as in others, its evolution may be accelerated and that, starting with a dermatitis, passing through a brief secondary stage, it reaches the terminal stage of the disease (white spotting).

4. *Unapparent Cases.* A limited serological study shows a positive serological reaction in clinically healthy persons, both those who have had contact and those who have not had contact with patients. It is very difficult to conduct research on whether a positive serology reaction is due to unapparent infections that have disappeared spontaneously, or to latent infections. Nevertheless, the fact that a positive serological reaction exceeds the number of persons with presently suspected dermatological lesions is significant.

5. *Immunity.* Since there is no natural immunity, thought must be given to the evident resistance to the disease shown by inhabitants of the pintagenic regions, in whom the disease begins in the first age groups, and it does not affect (clinically) groups of people in the most intimate contact with patients and who have been exposed, equally, to a single ecology.

What to do After Eradication of Treponematoses

GÉRARD A. BOYER, M.D.

ABSTRACT

An encouraging prospect for the eventual disappearance of treponematous infection is afforded by the generalized use of PAM therapy throughout the world, and the time has come to consider what action to take after the eradication of treponematoses.

Following its 12th World Assembly, the World Health Organization called on a Committee of Experts on Venereal Diseases to investigate and propose concrete measures that could be taken in this respect.

The Committee reported a series of recommended steps on both the international and the national levels, and in the two areas of consolidating eradication results thus far achieved and of prophylaxis to be applied.

Under the heading of "Consolidation of Results Achieved" the Committee proposed the following measures: close collaboration between private doctors and public health services, campaign of vigilance, specific protection, and the role assigned to the WHO.

In the field of prophylaxis the following activities were recommended on the international level: drafting of international anti-treponematous legislation, establishment of an international serological center, establishment of a research center, and establishment of a training center for experts; and on the national level: modification of the environment, and action against latent treponematous sources.

SOMMAIRE

Une perspective encourageante de la disparition éventuelle des infections tréponémiques est offerte par l'emploi généralisé dans le monde de la thérapeutique PAM, et le moment est venu d'envisager les mesures à prendre au lendemain de l'éradication des tréponématoses.

Suivant sa 12e Assemblée mondiale, l'Organisation mondiale de la santé a fait appel à un Comité d'experts des maladies vénériennes afin qu'il étudie et qu'il propose des mesures concrètes susceptibles d'être appliquées dans ce sens.

Au cours de son rapport, ce Comité a recommandé une série de mesures à être appliquées à la fois sur le niveau international et sur le niveau national, ainsi que dans les deux domaines, de la consolidation des résultats acquis jusqu'ici, en ce qui concerne l'éradication, et de la prophylaxie à faire triompher.

Sous le chapitre, "Consolidation des résultats acquis," le Comité a proposé les mesures suivantes: collaboration étroite entre la médecine privée et les services de santé publique, réforme des services de santé publique, campagne de vigilance, protection spécifique, et rôle de l'Organisation mondiale de la santé.

Dans le domaine de la prophylaxie, les activités suivantes furent recommandées sur le niveau international: rédaction d'une législation internationale antitréponémique, création d'un Centre international de sérologie, création d'un Centre de recherches, et création d'un Centre de formation d'experts; et sur le niveau national; modification du milieu, et action contre les réservoirs tréponémiques latents.

RESUMEN

Una perspectiva estimulante para la desaparición de la infección de la treponematosis se presenta a través del uso generalizado de PAM para la terapéutica por todo el mundo y la hora ha llegado para considerar las medidas a tomar después de la erradicación de la treponematosis.

Después de la Decimosegunda Asamblea Mundial, la Organización Mundial de la Salud formó un Comité de Expertos de Enfermedades Venereas para investigar y proponer medidas concretas que deben ser tomadas sobre este respecto.

El Comité reportó una serie de pasos necesarios en ambos niveles, internacional y nacional, y en los resultados de las dos areas de erradicación consolidada, hasta ahora obtenidos y de profilaxis que deben ser aplicadas.

Bajo el titulo de "Consolidación de los Resultados Obtenidos," el comité propuso las siguientes medidas: intima colaboración entre los médicos privados y los servicios de salud pública, campaña de vigilancia, de proteccion especifica, y el papel asignado al WHO.

En el campo de profilaxis, las actividades siguientes fueron recomendadas en el nivel internacional: el diseño de la legislación en contra de la treponematosis, el establecimiento de un centro internacional serologico, el establecimiento de un centro de investigación, y el establecimiento de un centro de entrenamiento para los expertos; y en el nivel nacional: la modificación del ambiente y la acción en contra de las fuentes de origen de la treponematosis latente.

HUDSON WROTE IN 1946 that it was illusory to hope for a civilization free of syphilis as long as yaws would remain endemic throughout the world. A new evaluation is now in order and mankind is faced with a more encouraging prospect since the epidemic nature of treponematoses has been disappearing thanks to the therapeutic action of PAM and the campaigns to eradicate treponematoses it has made possible to wage throughout the world.

The World Health Organization, faithful to its international role in the realm of research as defined and determined during the 12th World Assembly, asked its Committee of Experts on Venereal Diseases to study what action might be undertaken after eradication of treponematoses. The present paper submitted for your consideration is an inventory of possibilities offered to us. To accomplish the proposed purpose, these have been presented under the double heading of "Consolidation of Results Achieved" and "Prophylaxis To Be Applied." This double series of measures will be based on general hygienic principles applicable to any infectious disease: thorough knowledge of the host, of its environment, and of their interaction in order to assure definitive defeat of the agent.

Consolidation of Results Achieved

Consolidation of results achieved is the first and decisive phase to be accomplished, without which the efforts of the eradication campaigns would be wasted. Such consolidation will be effected through the following means:

Close Collaboration Between Private Doctors and Public Health Services

Syphilis and other treponematoses must no longer be the sole concern of patients and general practitioners or specialists. Consider any treponematose case a disease subject to compulsory reporting. The public health services will set up urban and rural dispensaries (or mobile teams wherever the latter are unfeasible) for the free treatment of treponematoses.

Reform of Public Health Services

This will apply in the first place to the public hygiene section, which has often remained in an embryonic state alongside a disproportionately large hospital service in the underdeveloped countries. The scarcity of hygienist physicians and of public sanitation specialists and the precariousness of financial means will motivate reform measures.

Furthermore, the public health services will have to establish an epidemiological service to gather necessary data to compile a "Suspicion Index" and to direct a surveillance team to swift and extensive action.

Campaign of Vigilance

At this stage of consolidation, the eradication instrumentalities must be converted to a vigilance team. This team will be used particularly to detect and treat latent cases. To facilitate the task and reduce its cost, it is preferable and more advantageous to integrate it with another mass campaign, such, for example, as one concerned with malaria, intestinal parasitoses, etc.

Specific Protection

Pending discovery of an immunizing agent and before the advent of resistance of treponemas to penicillin or the limitation of its use due to its allergenic effect, such specific protection will be afforded by:

(a) Diagnosis and detection of latent cases and recurrences (see foregoing "Campaign of Vigilance");

(b) Treatment and social rehabilitation of treponematose invalids;

(c) Development of social medicine: investigation of habits, customs, and way of life of social groups; visits by social workers.

Function of the World Health Organization

Through a central agency made up of members picked from its Committee of Experts on Venereal Diseases, the WHO will provide international control over this campaign.

This agency will enlist the participation of all health services in all countries in this vast undertaking of anti-treponematous struggle.

Delegates will be appointed by this agency within the framework of the WHO's zonal distributions. They will:

(a) Manage the campaign;

(b) Determine what technical assistance to provide and what equipment and medicines to furnish.

Prophylaxis To Be Applied

Treponematoses represent a world-wide public enemy. The slogan will be: Common Front on the National and International Levels.

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On the International Level

On the international level the means of combat will be the following:

Drafting of International Anti-Treponematous Legislation. The same as there is an international code on the subject of cholera, smallpox, etc., treponematoses would constitute another section of international sanitary legislation.

It will concentrate particularly on:

(a) Tourism: the ease and speed of travel increase the possibilities of disseminating venereal diseases;

(b) Emigrants: movements of people contribute to a large extent in spreading infection in large cities;

(c) Seafarers: seafaring people have occasioned many tasks in the epidemiological field, which resulted in the Brussels Arrangement.

This document, according to a desire expressed, would be subject to periodical revisions by a committee of experts to incorporate in it adjustments called for by the latest scientific discoveries and to check on the application of its terms. Also, the WHO would invite countries engaging in international trade to adhere to this pact.

Establishment of an International Serological Center. Such an institution would serve as guide and center of reference and control for treponematose serology. The great number of serological methods presently proposed, the technical difficulties involved in applying the most worthwhile of these, and recourse to reactions whose sensitivity is matched by their specificity confer on such a center the task of elaborating an international standardization of serodiagnostic methods. The suggestion made by the Committee of Experts on Venereal Diseases and Treponematoses regarding the technique of fluorescent treponematous antibodies (FTA) would materialize.

This serological center would have to assist underdeveloped countries that still lack personnel and means to cooperate effectively in this campaign program. This function would be supplemented by controlling the purity of reagents used and by developing techniques to preserve serum samples for subsequent analysis in a qualified center.

Establishment of a Research Center. The many unknown factors in the pathology of treponematoses can compromise results achieved and contribute toward the persistence of treponematous diseases or the rekindling of extinguished sources.

Investigations would deal with:

(a) The biology of treponema and the epidemiology of endemic treponematoses;

(b) The pathogenesis and immunology of treponematoses;

(c) Clinical and diagnostical problems.

Establishment of a Training Center for Experts. A prophylaxis campaign can only be undertaken with the help of qualified technicians. This huge task requires a battalion that is not immediately available for technical assistance as required under foregoing "Function of World Health Organization".

On the National Level

Such an international program, to be accomplished, needs a framework in the form of a nation, with its geographical, social, economic, political, and human complex.

These factors confer a peculiar character on the undertaking, imposing modifications to the general public hygiene directives. The relationship between the WHO and the various countries and the contribution of each country may be considered in the following manner:

Modification of the Environment. The environment is a never-ending creation of man, capable of being modified and adapted. It may be modified by governmental action aimed at the following:

(a) Improvement of the general health level. To obtain constant health balance conditions, all factors generating disease and likely to compromise the results of eradication must be intercepted.

The first curse to combat will be poverty, which brings about malnutrition, promiscuity, and the degeneration of biological means of organic resistance. It would be illusory to count on a world free of treponematoses so long as a large part of mankind is still living according to the tragic formula: weak economy equals underdeveloped people equals source of widespread infectious and parasitic endemics. Assuming solution of the third element, two factors remain whose epidemic nature preserves all its virulence.

To stimulate and increase production and to provide a fair redistribution of national income remain at the basis of effective prophylaxis.

(b) Improved economic conditions will make it possible to cause general and personal rules of hygiene to prevail. These are often lacking in part or in whole among suburban or rural populations. The indispensable means of hygiene—soap and water—must be available to

all, regardless of income. Only then can there be carried out worthwhile demonstration campaigns by health centers, teams of visiting nurses, and rural assistants.

(c) The creation and increase of schools will make possible the introduction of sexual and sanitary education and the profitable dissemination of anti-venereal information.

Such educational measures will be designed to influence the people's attitude, which in underdeveloped areas presents a peculiar state of mind: in particular there is lacking a sense of cause and effect as regards sexual relations and venereal diseases, and one encounters a passive way of looking at things, regarding disease as an "evil spell."

This educational program will also aim at creating confidence in the sanitary teams.

Action Against Latent Treponematous Sources. To assure their extinction the following means are proposed:

(a) Diagnostic facilities placed at the service of the medical corps. To dispose of adequate equipment for tracking down treponema and perform serological reactions recommended by the WHO. These tests must be free and easy to carry out in the most out-of-the-way centers.

(b) Premarital tests and certificates. To introduce generally in cities and rural areas premarital tests and certificates. They should be required in the case of both legal marriages and all other forms of enduring sexual unions ("allotment," polygamy) whose practice is endorsed by the economy and customs of various regions in the world. Social welfare and assistance departments would implement such a program.

(c) Periodical serological inspection. This would be applied at the level of groups of individuals immediately accessible whose role in society could make of them sources or occasional vehicles of infection. To demand a serological certificate upon hiring laborers or enlisting personnel in the armed forces. Kindergartens and primary schools will facilitate extension of premarital certificate regulations. Serological checks would be yearly.

(d) Struggle against sexual perversion and prostitution. Homosexuality has been a major propagation factor in the increase of syphilis incidence in the last five years. A struggle must hence be waged against mental and psychological deficiencies, psychic abnormalities, and sexual immaturity.

As regards prostitution, to seek out the factors that encourage it. General steps can be taken such as improvement of housing, equalization of wages, sexual education and mental hygiene to be inculcated in schools and colleges, improvement of women's status, and stepping up social welfare measures in communities on the way to industrialization.

(e) Organization of propaganda. Assign priority to movies and television. Pictures are the most concrete and eloquent language one can use.

Impress minds with views taken from life. Demonstrate the propagation property of treponematoses and the sensational effectiveness of therapy. Show the concreteness of prophylactic means.

Conclusion

Treponematoses, a world-wide problem born with man and developed by geographical, climatic and social factors, require the application of collective and international measures to assure the permanence of their eradication.

Protection must cease being a purely individual matter in order to put an end to "those complicities of solitude." The efforts of governments, assisted and guided by the World Health Organization, can reduce these great endemics to historical memories, thus restoring to almost half of all mankind its chances for progress. Adoption and application of these measures will put an end to all this suffering in the world that is still considered only as a matter of statistics and graphs.

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Must We Let it Happen Again?

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ABSTRACT

The trend of total reported cases of syphilis over a period of time may be interpreted as an index to the prevalence trend of the disease as long as casefinding activities and reporting practices remain fairly constant.

During the past four years primary and secondary syphilis have increased 200%.

State laboratories checked the accuracy of serologic test performance in a total of 7,200 local public health and private laboratories throughout the U.S. in fiscal year 1962.

Sources of treatment include all licensed private members of the healing arts, all hospitals, outpatient departments, and clinics.

Since 1947 the efficiency of investigators has more than doubled, not only in terms of infected people brought to treatment, but also in the number of sex contacts named per syphilitic patient seeking treatment.

The private physician is responsible for not reporting the largest group of patients seeking treatment.

All media of public communication—the press, television, radio, motion pictures, lectures, publications, and exhibits—must be continuously used for educational purposes.

Every public health program should have a venereal disease control officer. His duties include the following: Supervision of the venereal disease control unit; collection and analysis of morbidity data; promoting cooperation with private physicians and liaison with state and local medical societies; promotion of cordial relations with the public; supervision of epidemiologic services; and control of sources of treatment.

SOMMAIRE

Aussi longtemps que l'on continuera de dépister les cas de syphilis et d'établir des rapports sur ces cas, la courbe représentative de la totalité des cas de syphilis signalés pourra être interprétée comme indiquant fidèlement la direction prédominante prise par la maladie.

Pendant les quatre dernières années, les cas de syphilis primaire et secondaire ont augmenté de 200%.

Les laboratoires d'Etat vérifièrent l'exactitude des tests sérologiques accomplis par un total de 7,200 laboratoires de la santé publique locale ou privés, à travers les Etats-Unis, au cours de l'année fiscale 1962.

Les sources de traitement comprennent tous les membres privés diplômés de la Thérapeutique, tous les hôpitaux.

Depuis 1947, l'efficacité des enquêteurs a plus que doublé, non seulement en ce qui concerne le nombre des personnes contaminées amenées à se faire examiner, mais aussi le nombre des contacts sexuels déclarés par le syphilitique cherchant à se faire traiter.

Le médecin privé est responsable de n'avoir pas signalé la plupart des cas de malades venus se faire soigner.

Tous les moyens de diffusion publique—la presse, la télévision, la radio, le cinéma, les lectures, les publications et les arts—doivent servir continuellement à des fins éducationnelles.

Tout programme de santé publique devrait prévoir un fonctionnaire chargé du contrôle des maladies vénériennes. Ses fonctions comprendraient: la haute surveillance de l'Unité de Contrôle des maladies vénériennes; le recueil et l'analyse des informations données sur les ravages de la maladie; la promotion d'une coopération avec les médecins du privé et d'une liaison avec les sociétés médicales d'Etat et locales; la promotion de relations cordiales avec le public; la haute surveillance des services épidémiologiques et le contrôle des sources de traitement.

RESUMEN

La tendencia que indique el número total de casos de sífilis reportados durante un período dado puede tomarse como un índice de la tendencia predominante de la enfermedad, siempre que las actividades para descubrir y reportar los casos se mantengan más o menos constantes.

En el curso de los últimos años los casos de sífilis primaria y secundaria han aumentado en un 200 por ciento.

Durante el ejercicio fiscal de 1962, laboratorios de los diversos Estados verificaron la exactitud de pruebas serológicas realizadas en 7,200 laboratorios locales, tanto públicos como privados, en todos los Estados Unidos.

Las fuentes de tratamiento comprenden todos los miembros de la profesión médica con licencia para ejercer, todos los hospitales, los departamentos de pacientes ambulatorios y los dispensarios.

Desde 1947 se ha más que duplicado la eficiencia de los investigadores, no sólo en cuanto al número de pacientes infectados que recibieron tratamiento, sino también en cuanto al número de contactos sexuales identificados por cada paciente de sífilis que busca recibir tratamiento.

Son los médicos particulares los responsables de no reportar el mayor número de pacientes que buscan recibir tratamiento.

Se deben emplear continuamente todos los medios públicos de divulgación—prensa, televisión, radio, cinematógrafo, conferencias, publicaciones y exhibiciones—con fines educativos.

Es preciso que en cada programa de salud pública haya un funcionario responsable del control de las enfermedades venéreas. Sus funciones comprenden lo siguiente: la supervisión de la unidad del control de las

enfermedades venéreas; la recopilación y análisis de datos sobre morbilidad; el fomentar la cooperación con los médicos particulares y el mantenerse en contacto con las asociaciones médicas de los diversos Estados y de las diversas localidades; el promover las relaciones cordiales con el público; el supervisar los servicios epidemiológicos y el controlar las fuentes de tratamiento.

THE ANSWER IS we must *not!* We will not if we are courageous, perspicacious and industrious.

Scientific discoveries in recent years have aided greatly in the control of syphilis but the recent report of the Task Force on the Control of Syphilis indicates that we have been negligent in the application of our knowledge. It seems appropriate, therefore, to detect our errors to compare present procedures with those followed at the beginning of World War II. Before a detailed comparison a brief review of the syphilis control movement in the United States will show the vacillating character of our attack.

Doctor J. Marion Sims devoted a large portion of his 1876 presidential address before the American Medical Association to the syphilis problem. The plan he presented could well be adapted to present needs as can be seen from his own summary:

> Now what I propose in regard to syphilis, is simply to give to the already existing Boards of Health, in the various cities, the same power over syphilis that they now possess over cholera, small pox, and yellow fever. They now have the power of ferreting out small pox, and of sending it to hospitals for treatment; and they should have the same power of searching out the abode of syphilis, and of sending its victims to hospitals for treatment.

This was not done and with the outbreak of World War I the massive infection of newly mobilized troops became a matter of record. At first the venereal disease control attack was directed toward the civilian population in cities adjacent to military camps, but subsequently the whole civilian population was regarded as a potential reservoir. The first official program of the federal government followed.

On July 9, 1918 the Congress established a Division of Venereal Disease in the United States Public Health Service and appropriated a million dollars for aid to the states in organizing the new work. This was the largest amount made available for state aid in any public health program up to that time. During the first year 46 states conformed to federal regulations and received allotments. In '30 states 200 new venereal disease clinics were established.

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Then the regrettable happened for the first time. There was a drastic curtailment of Public Health Service funds in 1920, and by 1926 all federal aid to the states for venereal disease control work was terminated. During the next decade an appropriation of $60,000 a year was used to keep a statistical record of incidence and prevalence and to conduct cooperative studies with philanthropic agencies. An astounding result of one of these studies was the discovery that in a county in Alabama 40% of the Negro population was infected with syphilis, and less than 4% of these syphilitic persons had received any treatment.

Interest in human welfare and public health surged in the middle of the 1930 decade. The Social Security Act with its public health Title VI became law and state health departments received federal allotments for general health; some of this money was used for venereal disease control. Then due largely to the personality and magnetism of Surgeon General Thomas Parran, who demanded in a popular national magazine *Why Don't We Stamp Out Syphilis?* an intensified program was renewed. Three years later liberal amounts of federal money were appropriated again specifically for the venereal disease control program.

Measuring Extent of Problem

It was not until 1941 that all of the states adopted the system of reporting syphilis as infectious (primary, secondary, and early latent). Figure 1 shows the incidence trend and alarming developments in recent years.

The trend of total reported cases of syphilis over a period of time may be interpreted as an index to the prevalence trend of the disease as long as casefinding activities and reporting practices remain fairly constant. The trend line for total syphilis shows a fairly regular decrease in this graph for the 1941–1961 period with some evidence of levelling off after 1955.

The trend of reported cases of primary and secondary syphilis is used as an index of the trend of incidence of syphilis. Reported cases differ from actual incidence by the number of cases diagnosed but not reported, and the number of cases that occur but are not diagnosed. However, as long as casefinding activities, levels

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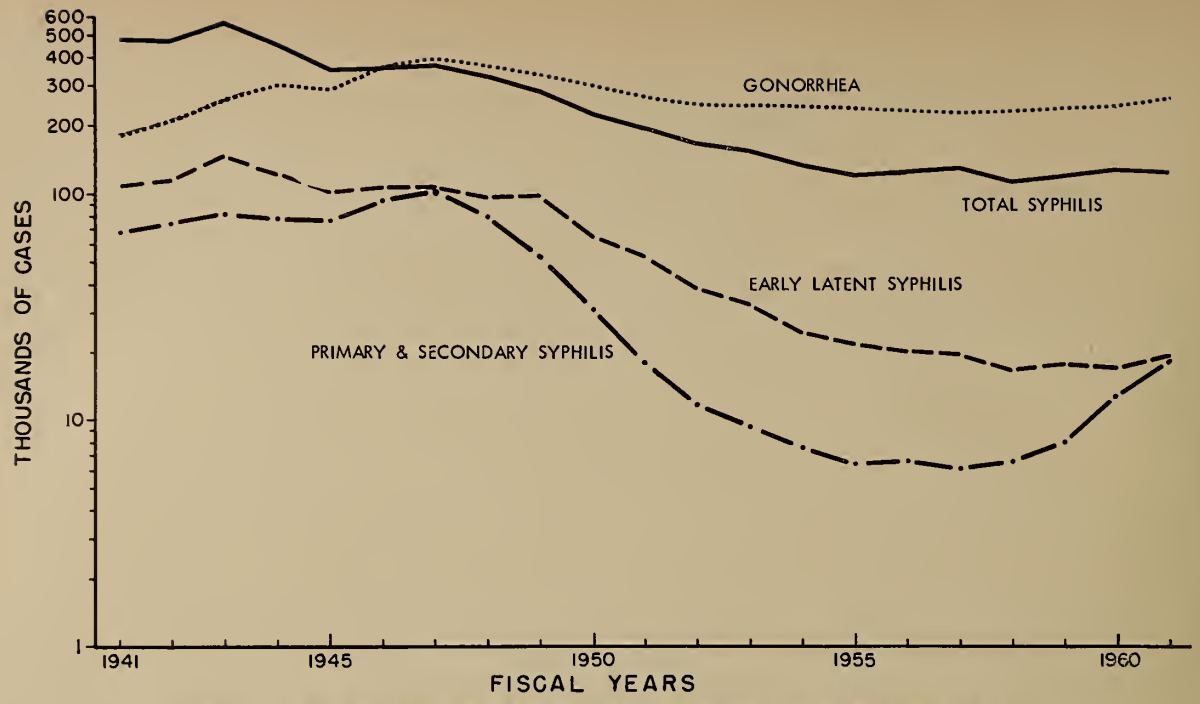

Figure 1. Syphilis and gonorrhea: Reported cases by diagnosis in the United States, 1941–61

of reporting, efficacy of treatment schedules, and clinical course of the disease remain roughly constant the trend of reported cases can be interpreted as paralleling the number of cases actually occurring.

It is believed to be both significant and alarming that in each of the past four years there has been an increase in the incidence of primary and secondary syphilis of about 50% per year, and that during the entire period infectious syphilis has increased a total of 200%.

The trend of gonorrhea in this graph has no significance except perhaps to indicate a constancy of incidence and of reporting practices.

Laboratory Services

The qualitative serologic test for syphilis continues to be the most important procedure for the detection of this disease. It is performed free by all states and local public health laboratories throughout the country. The total number of such tests performed annually in all laboratories reporting was approximately 2,000,000 in fiscal year 1936; the number rose rapidly to 28,000,000 in 1943, descended to 12,000,000 in 1954, and has remained between 12 and 13 million annually since. (Table 1.)

Of great encouragement has been the high quality of the work in syphilis serology done in state laboratories. Voluntarily accuracy checks of serologic test performance are made annually by these laboratories in cooperation with the United States Public Health Service. The first such check in 1938 showed that 37 of 46 participating state laboratories (80%) performed one or more tests satisfactorily. In 1961 all state laboratories performed satisfactorily.

State laboratories checked the accuracy of serologic test performance in a total of 7,200 local public health and private laboratories throughout the United States in fiscal year 1962.

The work in syphilis serology is in marked contrast with laboratory tests used in the diagnosis and control of *other* diseases of interest to the public health. No acceptable plan has yet been developed to determine the reliability of such other laboratory procedures. As a result thousands of people for whom these tests are performed are reported falsely as positive, may be subjected to costly and unnecessary treatment, and some even to extensive surgical operations.

The recent rise in early syphilis incidence suggests that the serologic blood test is not being used in the most effective manner to attain control. This was brought out recently by the Task Force on the Control of Syphilis. Mass syphilis blood testing has been recognized for years as being indicated routinely under the following circumstances:

1. For all patients admitted to hospitals, outpatient departments, and private physicians offices;

2. In all industrial physical examinations;

3. In selected population groups where prevalence is high, or to measure the extent of the syphilis problem in a community;

4. In all persons given a physical examination for induction into the armed forces; and,

5. In candidates for marriage.

Sources of Treatment

Sources of treatment include all licensed private members of the healing arts, all hospitals, outpatient departments, and clinics at which persons infected with syphilis are given medical attention. A fairly accurate tally has been maintained over the past 25 years of venereal disease clinics, including hospitals and outpatient departments. The number of private doctors who treat syphilis has never been known.

Table 1. Comparison of V.D. control facilities and services before World War II and today

Facilities and Services	Before World War II	Today
Thousands of cases of primary and secondary syphilis reported in a year	70	19
Millions of serologic tests for syphilis reported annually (mainly public laboratory tests)	16. 5	12. 0
Number of State laboratories annually checking accuracy of serologic test performance	46	48
Percent with satisfactory test performance	80%	100%
Number of venereal disease clinics	3, 248	1, 099
Number of States which employ full-time venereal disease investigators	39	33
Number of full-time venereal disease investigators employed by States and/or local health departments from State and local funds	601	189
Number of full-time venereal disease investigators employed by Federal Government or supported from Federal funds	480	427
Number of articles on syphilis published annually in the *Journal of the American Medical Association*	64	6
Number of State medical associations with an advisory committee on venereal disease control	38	11
Number of qualified State venereal disease control officers	40	13
Number of qualified Public Health Service venereal disease control officers	37	5
Approximate present day purchasing power of federal venereal disease appropriations (millions of dollars)	20	8

Sources of treatment should be prepared to give emergency therapy for syphilis, but we note an alarming decrease in such sources treating syphilis since World War II. In 1936 there were approximately 1000 clinics where treatment was administered free or at nominal cost. The number reached a peak in fiscal year 1942 with 3248 clinics, decreased to 2004 in 1955, and to 1099 in 1962. There is no evidence to show that the number of private doctors treating syphilis has increased to carry the load formerly borne by the now non-existent clinics.

The ratio of private to clinic patients reported with primary and secondary syphilis has shown little variation since 1946. In 1942 the ratio was 1 to 1, the best showing made by the private physician, but by 1946 the ratio had decreased to two clinic patients for every one reported by private physicians. This ratio has maintained through fiscal year 1961.

Though the problems of reporting and clinic maintenance have remained through the years, the therapy of syphilis has been so improved by the advent of antibiotics that the chances of eradication of the disease are much better now than 20 years ago.

Casefinding

In the following paragraphs, full-time public health nurses and the trained male workers are included in the term "venereal disease epidemiologic investigator." All present male investigators are college graduates, but this was not so 20 years ago. Another important change is that at least 95% of the time of these investigators is devoted to casefinding, the need for case holding having been solved by the greater efficacy of the antibiotic drugs.

Twenty years ago 39 states employed 601 full-time venereal disease investigators. In fiscal year 1962, however, the number of states had dropped to 33 that employed less than a third the number of such investigators (189).

The Public Health Service has a much better record. Twenty years ago the Service employed 480 full-time venereal disease control epidemiologic investigators, who were assigned to state and local health departments for duty; an unknown percentage of these investigators were engaged in statistical work. Today there are 427 federal investigators so assigned and the number will be increased using additional federal funds available in 1963.

The record of these investigators during the last 15 years offers additional hope that syphilis

can be eradicated in the United States. Since 1947 their efficiency has more than doubled not only in terms of infected people brought to treatment but also in the number of sex contacts named per syphilitic patient seeking treatment. It is interesting that although the same investigators are assigned to patients in clinics and in private physicians' offices, the results are about 50% more successful among clinic patients.

Liaison With the Medical Profession

Twenty years ago a broad program of professional liaison was recommended to health departments at all governmental levels. This venereal disease control activity included five procedures:

1. Modification of the curriculum of medical schools to insure better instruction in the public health aspects of venereal disease control;
2. Subsidies to medical schools, teaching hospitals, and teaching clinics for graduate and undergraduate medical students interested in the venereal disease specialty;
3. Postgraduate instruction of practicing physicians of two types, (a) the short refresher course, and (b) the prolonged, intensive training course for the future specialist;
4. The provision of consultation services; and
5. The dissemination of effective informative literature to private physicians.

There is considerable evidence that all have been dilatory in meeting this part of the program. The procrastination of health departments will be presented under the section on administrative trends. The private physician continues to report only about one-third of the patients with syphilis and one-fifth of the gonorrhea. He is responsible for *not* reporting the largest group of patients seeking treatment.

One of the distressing developments has been the decrease in the number of articles appearing in the *Journal of The American Medical Association*. In 1940 the number of items on syphilis appearing in this Journal was 64; in 1955 the number was 25; and by 1960 there were only 6 items. Yet this is the most important scientific medium in the country for the private physician.

Seven years ago the Section on Dermatology and Syphilology of the same association dropped the last two words of its title. If this action connoted diminished interest it is most deplorable because a quarter of a century ago almost all the consultants on syphilis to health departments were selected from the members of that section.

Before World War II more than three-fourths of the state medical associations had active venereal disease advisory committees to their state health departments. Today only 11 are reported to have such committees, and one reports the committee is new and has not yet met!

Public Educational Program

Intelligent public understanding of the venereal diseases and of the objectives of the control program is essential to public support and to effective public use of the control facilities that are available. Efficient and persistent public education not only accelerates casefinding, but may also be counted on to inhibit exposure and to encourage prevention of infection. All media of public communication—the press, television, radio, motion pictures, lectures, publications, and exhibits—must be continuously used. The educational material should be directed to the population groups and the geographic areas with the highest infection rates. Special work must be done to promote acceptance of venereal disease education in some of the large metropolitan areas.

The Public Health Service now has three venereal disease education specialists on loan to health departments. This number should be increased to 20 for work in the states and metropolitan areas with the highest syphilis incidence.

If properly supported the American Social Health Association can be of great help in expanding the public education program.

Administrative Trends

The effectiveness of a public health program varies directly with the capabilities of the health officer guiding it and with his conscientiousness in using available funds economically for the purpose for which they were appropriated. For a successful venereal disease control program there must be an autonomous unit or sub-unit within the health department headed by a full-time venereal disease control officer. This officer must be a physician with a postgraduate degree in public health and special training in the clinical management of the venereal diseases. His duties include the following:

1. Administrative supervision over the work of the venereal disease control unit;

2. The collection and analysis of venereal disease morbidity data;

3. The establishment of effective cooperation with private physicians and liaison with state and local medical societies;

4. Promotion of cordial relations with the public including a continuous campaign of education in venereal disease control;

5. Administrative consultation to other units within the health department;

6. The organization and supervision of venereal disease clinics;

7. The organization and supervision of epidemiologic services for clinics and private physicians;

8. Study and control of the efficiency of venereal disease sources of treatment.

Prior to World War II all states and cities with a population of more than 500,000 were required to have a full-time venereal disease control officer to obtain federal funds. All except a few with very low incidence qualified although not all the venereal disease control officers had degrees in public health; the years before the war were too few to adhere rigidly to this requirement. For the present it is believed that all states and cities with a population of a million or more and a primary-secondary incidence rate of 10 or more per 100,000 population should have a program headed by a qualified full-time venereal disease control officer. At present only 13 state health departments have qualified officers and some of these are assigned to municipal programs. Only six of 15 of the states with the highest incidence and a million or more population have qualified officers.

At the beginning of World War II the Public Health Service had 48 of its commissioned officers assigned to venereal disease control; 37 had degrees in public health. Today there are 14 Public Health Service officers so assigned, 5 with degrees in public health.

Financial comparisons are also illuminating. With dollars in 1941 almost double present purchasing power, $10,000,000 was available to the Public Health Service for venereal disease control at the beginning of World War II. The amount in present day dollars is $8,000,000 for the fiscal year 1963. Reliable estimates of the amounts allotted at the state and local levels are not available.

Conclusions

Syphilis can be eliminated as a public health problem in the next decade by vigorous application of the following old and well known principles:

1. Prompt reporting of all patients with syphilis to the health department.

2. A routine serologic blood test performed on all patients seeking medical care and on all persons given a physical examination.

3. Prompt emergency treatment of all patients with communicable syphilis.

4. An efficient system of casefinding to insure examination of all persons having contact with patients known to have communicable syphilis.

5. An organized effort by the medical profession to give to health departments the powers proposed by the president of the American Medical Association 86 years ago.

6. A continuing program of public education to insure that every person knows his role in the control of syphilis.

7. Competent leadership in health departments.

And, finally, as a senior citizen and one who has spent the great majority of his professional career in this struggle against syphilis, I feel it appropriate that I sound a word of warning. It is a well understood precept in a free society that the price of liberty is eternal vigilance. And, if we in our time are to free this nation of syphilis infection, we must remain ever steadfast in our will and determination to see this current struggle through to a successful conclusion. If we have learned anything from the past, it is the fact that syphilis will not just go away because we would wish it so. We should now be aware and ever remain aware that this highly contagious disease will require our eternal vigilance and vigorous effort when the trendline of syphilis incidence inevitably approaches the endpoint of eradication. For it will be in this critical period that pressures will develop from many quarters to cease and desist the great impetus that is now being built up. Unless there is raw courage, rare determination, and a united will, the forces of reaction and complacency will gain the upper hand and history will again be repeated. This must not happen in a civilized society. I am firmly convinced that you assembled here, your associates at home and the people everywhere will stand up and be counted to the very end—no matter what the cost nor how great the effort must be—so that this generation can say with justifiable pride "Syphilis we have no more."

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Medical Section

Where We Stand in Medical Research

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ABSTRACT

Reports from around the world indicate that penicillin sensitivity is becoming a more common and more serious problem. This is stimulating investigations for new antibiotics or treatment procedures, tests for penicillin sensitivity, and a closer study of penicillin in foods and vaccines. Megacillin, a depot preparation of penicillin and antihistamine without procaine, has been used on three syphilitic patients and 102 gonorrheal cases without evidence of inducing allergy.

Prednisone has been reported to inhibit Herxheimer reactions.

Erythromycin stearate or propionate may prove satisfactory for treatment of early syphilis.

Four patients with primary or secondary syphilis have been successfully treated with synnematin B.

Rivcrin, a pyrrolidinomethyl tetracycline, was more effective than penicillin.

Many shortcomings of treponemal tests and the inability to develop a practical artificial immunization procedure have not been solved because of our ignorance of the antigenic structure of the treponemes and the significance of various antibodies in the host.

A polysaccharide, a protein, and two lipid fractions from the Reiter organism have been isolated.

The extraction of antigen lipid and protein from pathogens has been reported. There is reason for optimism that these studies will lead to more accurate treponemal tests.

The rapid reagin tests are promising as reliable screening tests for mass surveys.

SOMMAIRE

Des rapports venus du monde entier indiquent que la sensibilisation à la pénicilline devient un problème de plus en plus fréquent et sérieux. Cela est de nature à stimuler les recherches en vue de trouver de nouveaux antibiotiques ou de nouveaux modes de traitement, des tests de résistance à la pénicilline et une étude plus approfondie de la pénicilline dans les aliments et dans les vaccins. La mégacilline, préparation à partir de pénicilline et d'antihistamine sans procaine, a été utilisée sur trois syphilitiques et dans 102 cas de gonorrhée, sans provoquer aucune allergie.

La prednisone aurait le pouvoir d'empêcher les réactions d'Herxheimer.

Le stéarate ou le propionate d'Erythromycine peuvent donner satisfaction dans le traitement des syphilis précoces.

Quatre syphilitiques primaires ou secondaires ont été traités avec succès par la synnématine B.

La rivérine, un pyrrolidinométhyl tetracycline, s'est montrée plus efficace que la pénicilline.

De nombreuses insuffisances constatées dans les tests sur le tréponème ainsi que l'incapacité de mettre à jour un procédé d'immunisation artificielle pratique, n'ont pas trouvé de solution à cause de notre ignorance de la structure antigène des tréponèmes et de la signification de divers anti-corps dans l'hôte.

Un polysaccharide, une fraction de protéine, et deux de lipide, provenant de l'organisme de Reiter, ont été isolés.

On aurait réussi à extraire de pathogènes un lipide et une proteine antigène. Voilà un motif d'être optimiste quant à la suite de ces études, qui doivent conduire à des tests sur le tréponème d'une rigoureuse précision.

Les tests à réaction rapide promettent d'être des tests sûrs de protection dans les inspections en masse.

RESUMEN

Los informes del mundo entero indican que la sensibilidad a la penicilina se está convirtiendo en un problema más corriente y mas serio. Esto ha estimulado investigaciones para hallar nuevos antibioticos o nuevos procedimientos de tratamientos, pruebas para la sensibilidad a la penicilina y un estudio más detallado de la penicilina en alimentos y vacunas. La megacilina, una preparación básica de la penicilina y antihistamina sin procaina, ha sido usada en tres pacientes sifilíticos y en 102 casos de gonorrea sin evidencia alguna de alérgia.

Se ha informado que la Prednisona inhibe las reacciones de Herxheimer.

La eritromicetina estearica o proporcionada puede ser satisfactoria para el tratamiento de la sifilis incipiente.

Cuatro pacientes con sífilis primaria y secundaria han sido tratados con exito con sinematina B.

Reverina, una tetraciclina pirrolidinometol, fue más efectiva que la penicilina.

Muchas deficiencias en las pruebas treponemales y la ineptitud para desarrollar un procedimiento de inmunización artificial práctica, no han sido solucionadas por nuestro desconocimiento en la estructura antigena de los treponemas y la significación de los varios anticuerpos en el paciente.

Un polisacarida, una proteina y dos fracciones de lipido del organismo de Reiter han sido aisladas.

Se ha informado la extracción de dos antigenos, uno de lipido y el otro de proteina. Hay una razón para tener optimismo que estos estudios nos lleven a unas pruebas más exactas de los treponemas.

Las pruebas rápidas de reagentes tienen un futuro como pruebas de discernimiento confiables para investigaciones en masa.

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IN THE United States of America our only knowledge of the incidence of syphilis comes from reports of state venereal disease clinics, some but not all private laboratories, and practitioners who choose but are seldom compelled to report venereal diseases. It then becomes quite apparent that many times the number of patients with venereal diseases exist in this country than are reported. Spot surveys of a few small states or cities showed a preponderance of unreported cases of both syphilis and gonorrhea. As a result, the American Social Health Association, National Medical Association, American Osteopathic Association and American Medical Association have sponsored a study whereby all practitioners of medicine in this country will be queried as to the number of primary, secondary and late cases of syphilis they have seen during the past three months. This study may give us a true picture of what is the actual incidence of this venereal disease in the United States.

Penicillin Sensitivity

Reports from many countries around the world indicate that penicillin sensitivity is becoming a more common and serious problem.

In Iraq, Arif (*1*) reports an incidence of reactions between 1 and 10 percent; Cortes (*2*) estimates an incidence of 4.2 to 8.0% in Mexico, and the Mexican Society of Allergists (*3*) estimates there is one penicillin death a day in Mexico.

In 1961 Brown et al. (*4*) from the United States Public Health Service reported on penicillin reactions in 35,500 venereal disease patients. There were 255 reactions, or about 7.2 per 1,000 patients, which was somewhat higher than the 6.7 per 1,000 reported in 1954. The urticaria rate was 5.7 per 1,000 and the anaphylaxis rate was 1.1 per 1,000. One third of the anaphylactic reactions were moderate to severe with no fatalities. In patients receiving a single injection of less than 1.2 million units the reaction rate was 5.3 per 1,000, but it was 66 per 1,000 in those receiving 7.2 million units in eight or more days.

The incidence of reactions was about the same in patients who had never had prior penicillin treatment as it was in those who had been treated previously without incident.

Reactions were more frequent in those who had reacted to previous penicillin administration, but antihistamines seemed to reduce the risks.

Development of New Antibiotics, Treatment Procedures, and Tests for Penicillin Sensitivity

Reports such as these are stimulating investigations for new antibiotics or treatment procedures, tests for penicillin sensitivity and a closer study of penicillins in foods and vaccines.

Grimm (*5*) has reported that megacillin, which is a depot preparation of penicillin and antihistamine without procaine, has been used on three syphilitic patients and 102 gonorrheal cases without evidence of inducing allergy. No ill effects were noted in one syphilitic with a prior history of penicillin sensitivity.

In an effort to prevent Herxheimer reactions, de Graciansky and Grupper (*6*) treated 147 early syphilitics with depot penicillin and cortisone. It was observed that the cortisone did not interfere significantly with the therapeutic action of penicillin. Musumeci (*7*), in a similar investigation, reported that prednisone inhibited Herxheimer reactions, and when used in combination with penicillin, the syphilomata healed more rapidly and treponemes disappeared much faster than with either drug alone.

Many new and synthetic penicillins, primarily for oral administration, have been developed, but have not had sufficient trial in human syphilis to evaluate their actual effectiveness. These include penicillin V, phenethicillin (broxil), methicillin, penbritin, oxybicillin, and others. However, an increasing number of cutaneous and even fatal systemic reactions to oral penicillins are being reported, which diminishes earlier optimism that the use of synthetic penicillins might eliminate the problems of penicillin sensitivity.

Another approach to circumventing the risks of penicillin hypersensitivity has been to investigate the value of antibiotics other than penicillin G in the treatment of syphilis and other treponematoses.

Dr. C. Hunter Montgomery has long been interested in such other antibiotics. His conclusions are that erythromycin stearate or propionate in a total dose of 20 grams given over a period of 10 days may prove satisfactory for treatment of early syphilis. Erythromycin propionate appears as good if not better than the stearate (*8*).

Synnematin B has been used by Dr. A. H. Wheeler (*9*, *10*) in both man and rabbits for the treatment of syphilis. In animals the 100%

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curative dose of aqueous synnematin B given intramuscularly was 100,000 units per kilogram in one or two days. This compares favorably to the successful treatment of one human early case of syphilis with a total of approximately 3,000,000 units of synnematin B.

Four additional patients with darkfield positive primary or secondary syphilis have been treated with synnematin B and observed over a period of 8 to 20 months. Two of these patients weighing about 85 kilograms each, treated with a total dosage between 2 and 2.5 million units, showed serologic relapse. However, re-treatment with approximately 5 million units brought about cure. The other two patients, 70 to 75 kilograms each, were treated initially with 5 million units, resulting in clinical and serologic cure.

Schwimmer and Henderson (*11*) reported successful treatment of one syphilitic patient with synnematin B. In a larger group of gonorrheal patients, some sensitive to penicillin, no cross sensitivities were noted.

Pharmacological studies at Abbott Laboratories showed that this drug is less toxic than penicillin (*12*). It is described as being a low-allergenic type antibiotic of the penicillin family that does not elicit cross reactions in penicillin-sensitive individuals (*13*).

Preliminary studies in our laboratories with experimental syphilis in rabbits indicate that a repository type preparation requiring only one or two injections may be satisfactory for treatment of early syphilis and for prophylaxis.

In contrast, Fegler and Knauer (*14*) reported that kanamycin, novobiocin and oleandomycin were ineffective therapeutically. In fact, kanamycin and novobiocin appeared to prolong the life of treponemes *in vitro*. On the other hand, Riverin, a pyrrolidinomethyl tetracycline, was more effective than penicillin; 100 times more *in vivo* and 1000 times more effective *in vitro*.

Garson et al. (*15*) have shown that kanamycin had no practical value in experimental rabbit syphilis. On the other hand, dextrosulphenidiol resulted in clinical and serologic cure, but at the time of the report the result of lymph node transfers was not known (*16*).

Meinicke (*17*) has reported that griseofulvin has no effect on the Reiter or Nichols pathogenic treponemes.

Prats and de la Parra (*18*) reported that 20 grams of a combination of tetracycline and oleandomycin brought about cure in 31 syphilitics, including 4 with LGV and 3 pregnant patients.

It would appear that the following summary is justifiable in respect to luetic therapy.

Penicillin remains the drug of choice and synnematin B, erythromycin, tetracyclines and dextrosuphenidiol appear to warrant continued evaluation. Synthetic penicillins for oral administration do not eliminate hypersensitivity reactions; the simultaneous injection of penicillin and antihistamines or steroids appear to reduce Herxheimer reactions and other sensitivity responses without adverse effects on therapy; penicillin is responsible for a greater percentage of sensitivity reactions than other antibiotics in venereal disease therapy; and risks are increased with larger doses, prolonged administration and in patients with previous history of penicillin reactions.

It is recommended that patients receiving penicillin should be held under observation for at least 30 minutes after treatment. An anaphylaxis kit should be available containing epinephrine, antihistamines, steroids and penicillinase, as minimum emergency supplies (*19*).

At the present time, *in vitro* tests for penicillin antibody are under study and seem to be of some value in specific situations; *in vivo* tests involving administration of small doses of penicillin by intra-ocular or skin scratch techniques are also being used to detect sensitivity. Their full value and limitations are not yet evaluated. However, caution is urged in the use of these *in vivo* sensitivity tests since some patients may react unfavorably.

One cannot leave the subject of therapy without calling attention to a report by Berger and Marggraf (*20*) in 1960 in which they claimed to have increased resistance of the Reiter treponeme by 50 to 100 times against penicillin, and 8-fold against terramycin.

To the best of our knowledge, earlier efforts to induce penicillin resistance in pathogenic and non-pathogenic treponemes were generally unsuccessful. This is in keeping with present clinical experiences which have failed to detect penicillin resistant treponemes.

Corticosteroids

Ashworth (*21*) of the Royal Eye Hospital of Manchester treated 84 eyes affected with interstitial keratitis by the local 2-hour instillation of cortisone acetate suspension (5 mg/1 ml.) or hydrocortisone acetate in the same dilution for 4–5 days. If improvement was apparent, the schedule of instillation was then q 4 hours. In severe and unresponsive interstitial keratitis, a subconjunctival injection of 4 ml. containing

10 mg. of hydrocortisone acetate was given. Treatment was from one month to 12 months. A majority were followed for 5 or more years without relapse, and all but 2 had 6/6 vision.

Prednisone Therapy for Neural Deafness

Hahn, Rodin and Haskins (*22*) have used prednisone in 19 patients with nerve deafness due to congenital syphilis, and 20 with neural deafness of other origin.

Objective improvement, often marked, occurred in 10 of 19 patients with nerve deafness and congenital syphilis during the first month, and was subsequently maintained. In 3, therapy was deliberately stopped without regression in 40 months, 1 month, and 2 months, respectively. It was speculated that in 9 with definite improvement, progression may have been stopped.

In neural deafness of undetermined etiology, prednisone therapy was valueless.

They felt that 8th nerve deafness due to congenital syphilis is not purely a degenerative process, since an anti-inflammatory agent will improve it.

Diagnostic Tests

Two areas of theoretical and practical concern in the treponematoses are specific diagnostic procedures and active immunization. In spite of the significant advances that followed the development of the Treponema Pallidum Immobilization Test, there are numerous problems associated with this test and others employing treponemal antigens. Undoubtedly, many of the shortcomings of treponemal tests as well as the inability to develop a practical artificial immunization procedure have not been solved because of our ignorance of the antigenic structure of the treponemes and the significance of the various antibodies in the host.

Some progress is being made in studying the antigen structure of the treponemes, but understandably more work is being done with the cultivable nonpathogenic strains than with the pathogens.

D'Alessandro and his colleagues (*23*), more than 10 years ago, isolated a polysaccharide, a protein and two lipid fractions from the Reiter organism. It is this protein fraction which is used in the several Reiter Protein Complement Fixation procedures.

Subsequently, De Bruijn (*24*), Christiansen (*25*), and Pillot (*26*) using different techniques, also isolated polysaccharide fractions from nonpathogens. In addition, Christiansen (*27*) has isolated a similar fraction from the pathogenic strain. Generally these polysaccharides have been species specific in that fractions from the Reiter treponeme react with Reiter antibody but not with antibody to the pathogenic treponemes. The polysaccharide from the Nichols pathogenic strain shows a similar specificity for homologous antibody.

A notable exception was the Reiter polysaccharide isolated by D'Alessandro and Del Carpio (*28*) which not only reacted with homologous (Reiter) antibody, but also with 76 of 185 syphilitic serums. This polysaccharide may have been contaminated with traces of protein.

Portnoy and Magnuson (*29*) extracted the Nichols pathogenic strain with desoxycholate and obtained a protein fraction which is used in the TPCF test (Treponema Pallidum Complement Fixation).

More recently, Rathlev and also Siefert (*30*) have reported the extraction of lipid and protein antigens from pathogens. Siefert describes the electrophoretic separation of extracts of the Nichols treponemes into two lipid fractions that proved to be complement-fixing antigens and 5 protein fractions of which 3 were reactive in complement-fixation tests; one of these was possibly a lipoprotein, and the other two were lipid-free.

Vaisman and Hamelin (*31*) using antigens prepared from ultrasonically ruptured treponemes, found that antigen from the pathogenic organisms was more specific and more sensitive than either the RPCF or the STS complement-fixation procedures. In testing more than 2300 serums and 300 C.S.F. with the sonicated Nichols antigen and with the TPI test, they found about 85% agreement in TPI reactive serums, but in 75 TPI nonreactive specimens the sonicated antigen was reactive in about 50% and the RPCF was reactive in about two-thirds of the cases.

There is reason for optimism that these early studies in the isolation of purified or partially purified antigens from pathogens and nonpathogens will lead to more accurate treponemal tests. Since the Reiter treponeme can be cultivated without difficulty, it would be advantageous if the most satisfactory antigen were isolated from this organism. In view of findings by Cannefax and Garson (*32*), Pillot and his colleagues (*33*), and Poetachke (*34*) demonstrating a common antigen in the pathogens and nonpathogens, there is reason for optimism that a purified component of the

Reiter treponeme may lead to a highly reliable diagnostic test.

In the meantime, simplified modifications have been developed in preparing crude protein antigen for the RPCF test. Investigators in Holland and France have substituted ultrasonic vibration for cryolysis in rupturing the treponeme. In our own laboratories, Le Fever, Grenier and Wheeler (*35*) have prepared RPCF antigen from organisms that were mechanically ruptured in three to four minutes instead of the long period required for cryolysis. The DIFCO laboratories prepared several experimental lots for us on a commercial scale and these antigens have proven as specific and sensitive as those prepared by cryolysis.

Hardy and Nell (*36*) have reported the isolation of two proteins from the Reiter treponeme. One appears to be a ribonucleoprotein that is active in complement fixation tests with syphilitic sera.

In view of the vast literature on comparative evaluations of the various treponemal and lipoidal tests, it is not necessary to go into detail on this aspect of diagnosis. The consensus appears to be that the FTA test may be more sensitive and equally as specific as the TPI test. This appears particularly true in testing of C.S.F.

A reactive RPCF result appears to be a reliable finding, but a non-reactive RPCF may reflect either the absence of antibody or marked undersensitivity of the test. It should be noted here that a peculiar phenomenon of the RPCF test has been reported by several laboratories; namely, that 25 to 40% of serums that were nonreactive if tested shortly after collection became reactive if stored cold or frozen for several days or more (*37*).

The cause and significance of this observation are not fully understood.

In recent years and months new diagnostic procedures have been developed and these deserve special mention.

First, the rapid reagin tests hold promise as reliable screening tests for mass surveys, national border station testing of migrants, and routine hospital admission tests. The Unheated Serum Reagin and the Rapid Plasma Reagin tests developed by Portnoy and associates (*38*, *39*) have performed well in a series of evaluation studies. In the same category one finds the Plasmacrit procedure of Andujar (*40*). The speed, simplicity and economy of these tests will undoubtedly result in a much wider use of them or similar procedures.

In view of the increasing number of cases of early infectious syphilis and the concomitant need for additional darkfield examinations, the recent report of detection of *T. pallidum* in primary lesions by the fluorescent antibody technique warrants additional confirmatory studies (*41*).

Metzger, Hardy and Nell (*42*, *43*) have developed a one-day TPI test employing lysozyme treated *T. pallidum* as antigen.

Investigators at the New York State Department of Health Laboratories have recently reported that a fluorescent antibody test with Reiter treponemes gives results that compare very favorably with the Nichols FTA test (*44*). If confirmed, this technique holds great promise.

Roemer and Schlipkoeter (*45*) have developed an agglutination test with Reiter treponemes which gave about 1% false positive reactions in their studies. In a subsequent application of this technique, Conrath (*46*) reported about 10% false positive reactions and further that the test appeared more sensitive in early than in late syphilis.

Tani (*47*) and Vaisman and Hamelin (*48*) have described *in vivo* "Pfeiffer Phenomenon" using dead pathogenic treponemes. The latter authors report perfect agreement between this technique and the TPI test using 373 sera and 29 CSF specimens.

Kitnar (*49*) utilized living treponemes and concluded that neither agglutination nor lysis was involved in this Pfeiffer Phenomenon. He suggested that first the organisms were immobilized and the second stage was an adherence-disappearance phenomenon.

Many of the above procedures have not had adequate reinvestigation, and their true usefulness must await further evaluation.

Research in Immunization

Another major unsolved problem of the treponematoses that may be influenced positively by more precise knowledge of the antigenic composition of treponemes is the development of a treponemal vaccine. This is a long sought achievement that has received the attention of many outstanding investigators during the past half-century.

Most of the important work on immunity prior to 1927 has been summarized in a monograph by Chesney (*50*). In 1957, Turner (*51*) published a monograph on the Biology of the Treponemes in which he incorporated an excellent summary of the immunity phenomena of the treponematoses. These two scientists,

their students and associates at Johns Hopkins University have played major roles in creating new immunological and serological knowledge.

Chesney is generally credited with demonstrating that resistance to reinfection does not necessarily depend upon the continued persistence of infection in the host. He noted that adequately treated syphilitic animals would resist reinfection for varying periods of time, depending upon factors such as the duration of infection prior to treatment and the time between treatment and challenge.

This was a significant observation which refuted Neisser's generally accepted thesis of infection-immunity which held that immunity persisted only as long as living treponemes were present in the host.

In 1939 and again in 1948 Turner (*52*, *53*) confirmed and extended the observations of Eberson (*54*) which showed the treponemicidal power of syphilitic serum *in vitro*.

With this information at hand and as a result of his development of a maintenance medium, it was possible for Nelson (*55*), in collaboration with Mayer, to develop the Treponema Pallidum Immobilization test. Later, Nelson (*56*) also described the Treponemal Immune Adherence Phenomenon and a diagnostic technique based on this observation.

Hardy and Nell (*57*), also of Johns Hopkins, developed the Treponema Pallidum Agglutination test in 1955.

Earlier, Tani (*58*) in Japan and McLeod and Magnuson (*59*) at the USPHS laboratories had described treponemal agglutination procedures.

Following development of the TPI test, a number of other diagnostic procedures were described, including complement-fixation tests with pathogenic (*29*) or nonpathogenic organisms (*60*) and fluorescent treponemal antibody tests (*61*).

We do not know which, if any, of the antibodies measured by these various procedures are the protective antibodies. Nevertheless, these tests are indicators of specific host response to treponemes, and as such they provide essential tools that were unavailable to many earlier investigators.

In the study of artificial immunization to treponemes, the investigations of Tani (*62*) in experimental rabbit syphilis have been the most encouraging. One half of his rabbits in certain experiments appeared totally resistant to challenge and about 65% of all the inoculation sites remained negative. His studies suggested that the quantity of inoculated antigen, the intervals between immunization and challenge and removal of the cell surface material were the most critical factors in eliciting an increased resistance to infection.

However, other workers, particularly Magnuson (*63*) and Eagle (*64*), using equivalent quantities of treponemes for immunizing purposes were unable to confirm Tani's findings. These workers used heat killed or lyophilized treponemes as antigens and employed Freund's adjuvant to enhance the immune response.

In the past few years, a renewed interest in the development of treponemal vaccines in this country has led to the initiation of specific programs by Carpenter, Miller and Boak (*65*) at the University of California in Los Angeles; by McLeod and Garson (*66*) in the USPHS laboratories, and by Wheeler (*67*) at the University of Michigan.

In a series of four excellent papers published in 1962, McLeod and Garson (*66*) reported that although rabbits immunized with TPCF antigen complex developed treponemal antibodies, they were not resistant to inoculation with 100 *T. pallidum*. They also demonstrated that the antigenic complex contained heat labile and heat stable components. Antibody to the labile antigen appeared identical with the antibody complex detected in the FTA test, whereas, antibodies to the heat stable TPCF antigen showed some relationship to the immobilizing antibody.

No relationship between TPCF and RPCF antibody or between TPCF antibody and reagin was shown.

Miller and Carpenter (*65*) failed to obtain protection against virulent treponemes in rabbits that had been immunized with 6.7 mgs. of Reiter protein. These animals had developed RPCF antibody but neither reagin nor TPI antibody could be demonstrated.

In serologic studies of treated syphilitic rabbits, these workers concluded that TPI antibody plays a role in the development and persistence of immunity. However, as they point out, dependence on serological data as evidence of the role of humoral antibodies to resistance is risky.

In our laboratories (*67*) it was observed that a small percentage of rabbits immunized with a protein complex of Reiter treponemes in Freund adjuvant showed partial immunity. The criteria of immunity were the percentage of intradermal challenge sites that failed to develop lesions, incubation time between challenge and

the appearance of lesions, the ultimate size of lesions and the rate of their healing.

In another experiment with 27 rabbits immunized with various antigens prepared from the virulent treponeme, four developed TPI antibody and the remainder did not. Two of the four TPI reactive animals and one of the TPI nonreactive rabbits did not develop lesions at any inoculated site. In comparison with control rabbits, the remaining immunized animals were partially immune according to the criteria given above. These data create optimism that immunization with killed treponemes may not be a wholly fruitless effort.

In another experiment, 30 rabbits were immunized with several different types of antigens from virulent treponemes or infected tissues, and subsequently challenged with pathogenic *T. pallidum*. The results in this experiment differ from those of previous experiments in that lesions developed in most inoculated sites, but in many instances they were persistently darkfield negative. Furthermore, the rate of appearance and disappearance of the clinical lesions suggested that both protective and hypersensitivity reactions may be involved (*68*).

Some of these observations will be reported separately at this meeting.

This discussion would be incomplete without reference to the most thorough and informative study of immunity to inoculation syphilis in humans by Magnuson, Thomas, Olansky, Kaplan, DeMello and Cutter (*69*).

Some of the more significant findings of this study will be cited below.

The 50% infectious intradermal inoculum of *T. pallidum* was approximately 57 treponemes for humans and 23 for rabbits.

Most of the results in this study could have been predicted from previous investigations with animals. The major exceptions are that immunity develops more slowly in man than in rabbits, and that there is a more rapid decline of resistance than would have been expected.

Five patients with untreated latent syphilis showed no clinical or serologic response to challenge and were presumed to be immune (infection-immunity).

All of 11 patients previously treated for early syphilis developed lesions and nine of these were darkfield positive.

Of 26 patients previously treated for proved or presumed late latent syphilis, one-half showed no clinical or serologic change; one developed a darkfield positive lesion; 12 developed darkfield negative lesions, one of which was a gumma.

Of five patients treated for proved or presumed congenital syphilis, one showed no change; one developed a darkfield positive lesion; and three developed darkfield negative lesions.

An interesting serological response showed that injection of heat killed treponemes produced an amanestic rise in TPI antibodies in some of the previously treated patients, but failed to produce significant increases in reagin titers. Similar injections in normal control patients did not change their antibody picture.

The authors suggest that although their data cannot be considered proof of the Sachs, Klopstock and Weil (*70*) theory of reagin formation, this theory offers an attractive explanation for some of the antibody responses observed in this study.

Much has been done to control, understand and treat syphilis, but there are still many areas yet to explore before we can prevent this disease as is done with many other infectious diseases.

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Future Research Needs

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ABSTRACT

The greatest need is for interest by workers in all fields which may have a bearing on the problem of treponematoses.

After World War II it was found that penicillin was effective in treatment. However, penicillin given for other purposes sometimes masked the presence of syphilis.

The study of syphilis involves much time, an expensive setup, and return in experimental results may be small. The syphilologist must get help from other disciplines, that is, chemistry, physics, physiology, pathology, and clinical, microbiological and serological experts.

Great opportunities from private and public sources are available to those seeking to engage in this research.

It has been found quite difficult to cultivate Treponema pallidum. Knowledge of the survival of treponemes away from the body, in soil, sweat and insects may help solve the transmission problems of endemic forms.

The existence of strains of T. pallidum is still highly debatable.

We lack a test which is able to indicate whether the syphilis is active or quiescent, infectious or noninfectious. There is great doubt as to the infallibility of the blood test in diagnosis.

Reinfections after penicillin treatment may be frequent.

Mass prophylaxis, such as of prostitutes, is possible, but a suitable means of immunization is still far from available.

The drugs used at present in treatment are reaction-producing; the antihistamines, antibiotics, and cortisone have not been studied enough.

This account should indicate that the treponematoses still offer a fruitful field of study.

SOMMAIRE

Ce qu'il faut avant tout, c'est attirer l'intérêt de tous ceux qui travaillent dans un domaine ayant un rapport possible avec la question des tréponématoses.

Après la IIème Guerre mondiale, on a constaté que le traitement à la pénicilline était efficace. Cependant, la pénicilline administrée pour d'autres raisons masquait parfois la présence de la syphilis.

L'étude de la syphilis exige beaucoup de temps et une organisation coûteuse, et le rendement en résultats expérimentaux peut être faible. Le syphilologue a besoin de l'aide des représentants d'autres disciplines telles que la chimie, la physique, la physiologie et la pathologie, ainsi que d'experts en microbiologie et en sérologie.

Ceux qui désirent s'engager dans cette voie de recherche trouveront que de grandes possibilités leur sont offertes par des sources publiques et privées.

La culture du Treponema pallidum s'est révélée très difficile. La connaissance de ses conditions de survie isolé du corps humain, dans le sol, la sueur et les insectes pourrait aider à résoudre les problèmes de transmission des formes endémiques.

L'existence de lignées de Treponema pallidum est encore très discutable.

Nous n'avons pas de test permettant d'indiquer si la syphilis est active ou latente, infectieuse ou non. On doute beaucoup de l'infaillibilité du test sanguin dans le diagnostic.

La réinfection peut fréquemment se produire après le traitement à la pénicilline.

La propylaxie collective est possible, pour les prostituées par exemple, mais on est encore loin de disposer de moyens d'immunisation suffisants.

Les médicaments employés à l'heure actuelle pour le traitement produisent une réaction; on n'a pas encore assez étudié les antihistamines, les antibiotiques et la cortisone.

Cet exposé devrait indiquer que les tréponématoses offrent encore un fertile terrain d'étude.

RESUMEN

Lo más importante es despertar el interés entre aquellas personas que trabajan en campos relacionados con el problema de las treponematosis.

Después de la segunda guerra mundial se descubrió que la penicilina resultaba un medio efectivo de tratamiento. Sin embargo, al administrar la penicilina para cualquier otra infección quedaba oculta la sífilis.

El estudio de la sífilis requiere mucho tiempo, y una estructura costosa; en cambio, los resultados que se obtengan de los experimentos pueden resultar mínimos. El sifilólogo necesita la cooperación de otras disciplinas como la química, física, fisiología, patología y de técnicos en medicina clínica, microbiología y serología.

Entidades públicas y privadas brindan grandes oportunidades a aquéllos que deseen realizar investigaciones.

Se ha descubierto que es bastante difícil hacer un cultivo del Treponema pallidum.

Cuando se conozca la habilidad de los treponemas para sobrevivir en el cuerpo, en la tierra y en el sudor y en insectos será posible ayudar a solucionar los problemas de transmisión de las formas endémicas.

Aún es discutible la existencia de cepas del T. pallidum.

No contamos con una prueba por medio de la cual se pueda saber si la sífilis es activa, infecciosa o no infecciosa. Hay duda acerca de la infalibilidad de la prueba de sangre en el diagnóstico.

Frecuentemente pueden ocurrir reinfecciones después de un tratamiento con penicilina.

Es posible realizar la profilaxia en masa, por ejemplo de las prostitutas, pero aún está lejos de alcanzar un medio apropiado de inmunización.

Las drogas que actualmente se usan para el tratamiento producen reacción; no se han estudiado lo suficiente las antihistaminas, antibióticos y la cortisona.

Esta relación demuestra que las treponematosis todavía constituyen un campo abierto de estudio.

THIS PRESENTATION WILL refer to venereal syphilis, particularly as I have seen it in the United States. The principles involved, however, have wide bearing on the general problem of treponematoses. This is especially so, because as endemic treponematoses are controlled, venereal syphilis will undoubtedly become more prevalent. Before entering into the background and the particular areas that need study, certain generalities can be stated more or less dogmatically. It is obvious that more study of fundamental problems should be the aim of the future students of the treponematoses. One must recognize that the shift in emphasis from the study of the individual to epidemiology has been the trend over the recent years. Although money is a big factor in the study of treponematoses, as it is in other fields of endeavor, the largest need for the future is not money, not problems, but interest—interest by workers in all fields which may have a bearing on the problems. Before outlining the future research needs, certain background material dealing with research in syphilis must be emphasized.

Remarkable developments in syphilology occur in cycles and there are periods on which one feels confident that the ultimate has been attained. In 1911, for example, Neisser (*1*) stated that there were three great discoveries making up the foundation of modern syphilotherapy: (1) The discovery of *Spirocheta pallida* by Schaudinn, with the cooperation of E. Hoffmann; (2) The discovery by Metchinikoff and Roux that syphilis is transmissible to monkeys; (3) The adaptation to syphilis examinations of the serodiagnostic methods of Bordet and Gengou by A. von Wassermann and his coworkers. The net result of these discoveries yielded much to establish the principles of therapy so that when the climax was reached, the synthesis of Salvarsan, "606" by Ehrlich, it would seem that the millenium had arrived. He stated further: "European physicians have known syphilis for more than four centuries, and for almost as long scientific medicine has been using mercury in its treatment. Yet only the last eight years have improved our knowledge of the nature and pathology of the disease sufficiently, so that we are able to replace a purely empirical, and therefore, uncertain treatment with a rational therapy: a therapy, the principles of which are based not merely upon hypotheses and theoretical speculations, but on actual observations. Seldom indeed has there been such notable progress in any branch of medicine in such a short time as we now note in syphilology. Best of all, these discoveries have been applied directly to the cure of the patient, the highest goal of any medical research. It is important and gratifying that these extraordinary achievements, with all their still-unexplained and unforeseen potentialities, have been attained neither by chance nor by crude empiricism. On the contrary, modern syphilotherapy is the result of exhaustive research in the spheres of etiology, diagnosis and experimental pathology and therapy." However, Neisser was not entirely full of optimism, for he stated further that "Human indolence and stupidity will arrange that syphilis will never die out but will remain always a dangerous disease, but we know that new and wonderful weapons have been placed in our hands to combat it. Let us practical physicians express our admiration and gratitude to those men who created scientific foundations for these therapeutic triumphs: Schaudinn, Hoffmann, Metchinikoff, Roux, Wassermann, Bruck, and Paul Ehrlich."

It did not take long for the syphilologists and venereologists to realize the shortcomings of syphilotherapy even with the arsenicals. The treatment was long, arduous, dangerous and perhaps not even curative in the biologic sense. Therefore, new drugs such as bismuth, and new methods of treatment such as intensive, rapid treatment so popular before the second World War, were studied extensively. Then came the discovery that penicillin had potential to wipe out syphilis with a minimum of treatment and a minimum of inconvenience. Again the hopes of the venereologists and syphilologists were at a peak, for at last one had at hand a medicament which was not only effective therapy for syphilis but seemed to have great potential

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against gonorrhea. Again it seemed that we had really come to a point where syphilis was no longer going to be a problem; in fact, in 1956 Joseph Earle Moore (*2*) stated that "It would now appear that the venereologist (syphilologist) finds himself in the position of having worked himself out of a job." Unfortunately, this idea that syphilis was no longer a problem was completely erroneous because in part it was probably that little syphilis was found because it was not looked for, as a result of decreased appropriations for case finding. It also appears that penicillin used for other purposes might be masking the presence of syphilis. The false confidence of the optimists was well put by Ambrose King (*3*) in his presentation, *These Dying Diseases:* "The post-war decline in incidence, and the introduction of new remedies, have inspired a false confidence and a move to dismantle some of the organization which has served the public well in the control of these diseases. Because of this attitude it has been difficult to recruit young men of quality to this special subject. There is a case for strengthening rather than weakening the venereal diseases scheme and for offering encouragement to new entrants by filling vacant appointments with venereologists and by financing research."

It is hardly necessary to go into details of the recent upsurge in venereal syphilis in the United States. It is amply emphasized by a few statements from the pamphlet of the United States Department of Health, Education, and Welfare, Public Health Service, entitled, *The Eradication of Syphilis*, 1961 (*4*), and the 1962 Joint Statement (*5*) in which it was stated that (1) The 18,781 persons reported with infectious syphilis in the United States during the fiscal year 1961 were the greatest number of such cases reported in any year since 1950; (2) The rise in infectious syphilis has been particularly sharp since 1959, and more than a 50 percent increase has been reported per year for each of the past 2 years; (3) Health officials have expressed particular alarm over the increase in teenagers. Their reports show that between 1956 and 1960 there was a rise of more than 130 percent in infectious syphilis among persons under 20 years of age. This may be smaller than the actual, and one need only recall the fact that chains of infection have been uncovered in many areas in this country.

Difficulties of Research in the Treponematoses

Leaving aside the many difficulties inherent in the study of large-scale endemic foci of treponematoses, study of syphilis as a disease presents certain basic difficulties, involves much time, and expensive setup, and return in experimental results which may be small. Furthermore the syphilologist must lean on other disciplines for help in order to obtain solution to certain problems, for example, chemistry, physics, physiology, pathology, and certain clinical and microbiological and serological experts. In spite of all this help, in spite of the willingness of a syphilis researcher to give time and attention to the problems of this field, it is true, as has been stated recently by Evan Thomas (*43*) : "In science it is axiomatic that beliefs must be supported by good evidence. Unfortunately, in syphilis, good evidence for the solution of numerous problems has been difficult, if not impossible, to obtain. In medicine, as in science, good evidence consists of the most logical probabilities. The less exact the science, the less exact the probabilities. Since many of the phenomena of syphilis have fallen far short of explanation by the more exact sciences, we have had to make the most of such evidence as has been available. This necessity has at times led us astray and, once beliefs become established by years of repetition, we tend to accept them and cease to look for other possibilities until forced to do so by overwhelming new evidence."

Funds and Opportunities for Research in Syphilis

The venereologist and syphilologist cannot use lack of funds or facilities as an excuse for avoiding syphilis research. Great opportunities both financial and physical from private and public sources are available to those seeking to engage in this research. Pharmaceutical houses have always been ready to support fundamental studies in this field. The WHO Director General's 1960 report (Unpublished) states that "In order to secure realistic implementation of planning, the first step suggested would be for WHO, in a definitive way, to determine the nature and extent of the support needed, and to arrange with interested groups, institutions and health administrations for the gradual implementation of projects in a coordinated manner."

Factors Influencing the Course of Syphilis

In 1944 Stokes, Beerman, and Ingraham (*6*) made a list of the factors said to affect the course of syphilis. These include:

1. *The Organism:* Strain; rate of reproduction; route of inoculation.

2. *Season:* Sunlight.
3. *Endocrine Hormones and Activity.*
4. *Diet.*
5. *Avitaminosis.*
6. *Defense Mechanism. Skin and Bone Involvement. Reticulo-Endothelial System.*
7. *Age.*
8. *Race:* There are scattered data but no definitive experimental study on this point.
9. *Sex:* Cause of milder course in women is still unknown.
10. *Pregnancy:* Numerous studies on the influence of pregnancy in syphilis are summarized by the aphorism: "Pregnancy is good for syphilis but syphilis is not good for pregnancy."
11. *Intercurrent Infection:* Scattered reports but our ignorance is still cloaked with phrases such as "biotropism," etc.
12. *Heat. Fever:* Probable thermal death-point has been determined but the mode of action of fever therapy is still a matter of conjecture.
13. *Physical Strain.*
14. *Nervous and Mental Activity.*
15. *Physical Constitution.*
16. *Trauma.*
17. *Treatment.*

None of these factors is clearly evaluated. Each of them supplies unlimited sources of material for productive investigation.

Merely as a reminder of how little we actually know about these problems, we will discuss briefly some of these about which there have been recent contributions.

The Organism

Specifically, with regard to *Treponema pallidum*, some of the perplexing problems include the question of cultivation of a virulent organism, life cycle, strains and interrelation among treponemes, the invasion mechanism, asymptomatic and carrier problem, and immunity and immunization. In this statement only a little of these can be touched on. Many of these were discussed by Stokes and Beerman in *extenso* in 1947 and 1948 (*7, 8, 9*). Little fundamental progress has occurred since then.

Cultivation of *Treponema Pallidum*

Numerous attempts to cultivate virulent *Treponema pallidum* have been unsuccessful at the hands of competent investigators (*10, 11, 12*) employing a variety of methods including the chorioallantoic membrane of the chick embryo (*13, 14, 15*). The recovery by Steinhaus and Hughes (*16*) of a spirochete from hen's eggs after inoculation with liver tissue from hens was not confirmed by Hård (*14*), who could not find evidence that *T. pallidum* (Nichols and Ghent strains) on darkfield examination or by mercury or silver impregnation is capable of multiplying in eggs (hen or goose). Emulsions of the embryos, when inoculated into rabbits, produced a positive result in a single case only. This suggests that treponemes do not occur in eggs in an ultramicroscopic phase of their life cycle, but that occasional organisms may survive their stay in the egg and be reinoculated with their virulence retained. In another study Hård (*15*) attempted to cultivate virulent *T. pallidum* in media containing growth factors from plants added to a basal medium. Growth of virulent *T. pallidum* was obtained for several weeks in the medium to which potato had been added.

Solution of the problem of cultivation of virulent *T. pallidum* would complete the requirements of the Laws of Koch to establish *T. pallidum* as the cause of syphilis and it would afford an unlimited source of virulent organisms for biologic and chemotherapeutic studies. In addition, knowledge of the survival of treponemes away from the body, in soil, sweat and insects, may help solve the transmission problems of endemic forms.

Life Cycle of *Treponema Pallidum*

The question of a life cycle and of evolution-forms of *T. pallidum* still remains unanswered. Ingraham (*17, 18*) and later Olsen (*19*) have reviewed this question thoroughly. The work of Delamater and others (*20, 21, 22*) using phase contrast and electron microscopic techniques is suggestive. The practical considerations which solution of this problem would yield are far-reaching, even to the mechanism of transmission of the disease, since if *T. pallidum* is capable of changing into an ultramicroscopic form and can conceal itself in a spermatozoon, paternal transmission of the disease is a possibility which is now denied. Certain phases in the life cycles may have an affinity for certain structures and thus remove the usually-employed postulate of strains, viz., neurotropic and dermatropic, and even treatment-resistant. Proof of the existence of a viral form may also explain certain of the puzzles of immunity in syphilis.

Strains of *Treponema Pallidum*

The existence of strains of *T. pallidum* with distinctive biologic properties is still a highly

debatable issue. Although the occurrence of neurotropic and other strains is inferred from experimental and clinical evidence, definite proof is lacking. The concept of strains should have a significant bearing in clinical syphilis, but as yet this influence is little understood.

Interrelation Among Treponemes

Specific information about the interrelationship among treponemes is still limited. This is independent of strains as such although the differences are more functional than morphologic (*23*, *24*). There is some evidence that the organism causing yaws produces an infection which sometimes protects against syphilis (*25*, *26*, *27*). The organism causing bejel and that producing pinta may also be functional variations of *T. pallidum*. This is not yet demonstrated. The biologic relationship between the causative agent of syphilis, yaws, and that causing venereal spirochetosis in rabbits which is morphologically similar, has just begun to be clarified by Turner and his associates. Turner, Hollander and Schaeffer (*28*) made comparative studies on *Treponema pallidum*, *Treponema pertenue* and *Treponema cuniculi* and showed that the organisms have many common characteristics. Studies using the TPI test show no substantial immunologic difference between *T. pallidum* and *T. pertenue*. Penicillin does not help to differentiate the organisms from the various treponematoses. Although their work, carefully controlled, indicated that the different results produced were due to substantial biologic differences between the three spirochetes studied, we are no nearer to the solution of the question whether the treponematoses, yaws, bejel, pinta, etc., are syndromes of the same disease or are independent processes (*29*). In addition, the problem of immunity and allergy in syphilis is in need of reevaluation. In a review, Urbach and I (*30*) pointed out that much of the information on immunity is based on experiments in which cure was attained by the use of arsenicals. In accordance with Worms' (*31*) ideas, unless the lymphnode transfers made to determine cure were performed at least a year after treatment, residual arsenical in the organism may really only have suppressed the infection. Since penicillin is rapidly eliminated and is presumed to be curative in animals this points the way for future study. So far no definitive results have been reported.

Turner and Hollander (*27*) suggest for solution of the problem: (1) Study of the adoptive and mutational patterns of the pathogenic treponemes; (2) Immuno-chemical studies of pathogenic treponematoses; (3) Study of the nature of the Wassermann antigen; (4) Continued efforts to cultivate virulent pathogenic treponemes.

Laboratory Problems in Syphilis Diagnosis

In the laboratory aspects of the diagnosis of syphilis there remains a variety of unsolved problems. There is no really satisfactory stain for *T. pallidum*. This is exemplified by the multitude of methods of staining spirochetes recommended by a host of investigators. Even the darkfield examination presents innumerable problems and, to be sure, is of limited value at the time the desired information is most useful. Clinicians long for a simple method of bacteriological character which will enable them at the earliest possible moment to establish with certainty a positive diagnosis of syphilis.

When the serologic tests for the diagnosis of syphilis were introduced by Wassermann, Neisser and Bruck, their specificity was accepted by the medical profession with implicit faith. Soon, however, it was found that falsely negative (non-reactive) reactions in syphilitics, as well as falsely positive (reactive) reactions. were repeatedly reported with all tests, not only in many nonsyphilitic diseases of human beings, but in presumably normal nonsyphilitic persons as well. In spite of stepping up sensitivity and specificity, and the introduction of new tests (TPI, TPCF, RPCF, the Rapid Plasma Reagin test and the Fluorescent Treponemal Antibody test), verification procedures, special antigens, such as the treponemal antigens and numerous other devices of a combined clinical and laboratory nature, we are still far from a satisfactory solution of the serologic problem, but there is hope for the future (*32*, *33*). In fact, the recognition of the many factors involved in interpretation of a serologic reaction has resulted in a somewhat lessened confidence in the tests and a great deal of confusion in the minds of the practitioners. As Stokes (*34*) has aptly stated, "This new question of how often a positive means syphilis; of how to identify the positives that do not; in what diseases and with what frequency nonspecific or nonsyphilitic positives are obtained, suddenly rises to disturb the diagnostic peace. In 1945 I made a survey (*35*) of the recent literature on the subject of biologic false positive reactions to the tests for syphilis. Among the more than 300 references cited, I was able

to gather little more than a mere statement of the reported incidence of false positive reactions in many disease processes, plus a lot of conjectures about the possible cause of the reactions and a rather feeble program for handling such cases in practice. Although much effort has recently been directed toward this problem from various angles, there remains much of a productive nature which further study will uncover.

Not only do we not have a simple, reliable, easily-performed test for syphilis or the endemic treponemal diseases, which will always diagnose syphilis at the earliest possible moment when it is present, and fail to give a reactive result when it is absent, but we lack a test which is able, even if it gives a reactive result, to indicate whether the syphilis is active or actually quiescent, infectious or noninfectious. No real knowledge is as yet available concerning the relationship of blood factors to the serologic outcome although work is in progress in this field. There is no definitive information as to the effect of external factors on the serologic result. We have no really standardized quantitative procedure. We know practically nothing about reagin or even the mechanism of our present tests, just to mention a few of the uncertainties which might be made a field for wider study.

Some Problems of Clinical Syphilology

The need for better appreciation and reevaluation of the finer points of clinical diagnosis of syphilis is emphasized by the still imperfect laboratory tests. Some authorities even state that after long study it is practically impossible to identify *T. pallidum* with certainty. The great propensity for false serologic results even with today's best techniques, casts great doubt on the infallibility of the blood test in diagnosis. In a sense, then, we must revert to a great extent to the days of the old clinical masters and differentiate by careful attention to clinical signs and employment of the multiple diagnostic approach of Stokes (*36*), the various dermatoses which might be mistaken for syphilis and vice versa. It is not desirable or safe to assume the syphilitic character of a lesion and because treatment (penicillin) is so harmless, to apply it on "suspicion." Furthermore, the situation of medical as well as dermatologic training without full grounding in syphilology is aptly expressed by a British reviewer (*37*) of *McKenna's Aids to Dermatology*, as follows: "Syphilis is now entirely omitted, which in a book on dermatology rather suggests the tragedy of Hamlet with the character of the Prince of Denmark left out." This need for exact knowledge of the manifestations of syphilis opens a wide field for careful study of the nature of the disease and the discovery of exact means for clinical differentiation.

Clinical contributions are of little help in the solution of laboratory problems. The clinician may act as a control to keep the laboratory workers in line. He may stimulate further work and evaluate the results. For example, the recognition of the problem of nonspecific reactions to the blood tests for syphilis is essentially the outcome of clinical studies in which the serologic results were not in agreement with the clinical findings. Likewise, the occurrence of an unusual clinical phenomenon or sequence in the course of syphilis may afford the laboratory man unlimited possibilities for study.

Some of the unsolved problems of clinical syphilis were discussed in 1939 by Moore (*38*). The four problems he considered of paramount interest are still enigmas today:

(a) The mode of infection, both in acquired and congenital syphilis.

(b) The localization of syphilitic lesions.

(c) The course of the syphilitic infection as modified by human constitution and other factors.

(d) The importance of syphilis as a cause of death.

We know little about the mechanism of asymptomatic infection. In congenital syphilis, we have little unequivocal evidence as to when and why the fetus is infected (*39*, *40*). The question of third generation syphilis, in spite of numerous reports (*41*) is still a matter of theory. Although we complacently accept the fact that syphilis has a special affinity for certain tissues, notably the skin, cardiovascular and nervous systems among others, we have no adequate explanation for this. Nor, on the other hand, have we worked out the mechanism or reason for spontaneous cure, not only in animals, but in man. The events taking place and their modus operandi in latency are still a matter of surmise. To this very incomplete group of problems must be added that of relapse, reinfection and superinfection.

Relapse, Reinfection and Superinfection

The problem of differentiation of relapse, reinfection and superinfection, closely bound up with immunity and cure in syphilis, has taken on a renewed importance with the reintroduc-

tion of intensive, especially penicillin, therapy. To date the situation is far from clarified (*42*). For example, cases of reinfection which were infrequent during the prearsphenamine era became much more numerous shortly after the introduction of the arsenicals into syphilotherapy. Soon, however, a reaction tending toward more critical consideration of criteria of reinfection set in, so that by 1931 Stokes, Schoch, and Ireland (*36*) rated reinfection as "a comparatively rare event in the course of syphilis today." Since 1931 the literature is replete with suggestions as to the uncertainty of what is meant by reinfection, so that cases of so-called reinfection are reported as "suspected reinfections," "probable reinfections," "questionable reinfections," "presumable reinfections." Intensive therapy and especially, penicillin treatment, are presumed to cure syphilis so rapidly that the host has no opportunity to develop immunity. Therefore, reinfections are not only possible but may be frequent after this type of treatment (*43*). Although animal studies permit precise control of certain factors which can affect the development of immunity in experimental syphilis (time factor quality (virulence) and quantity of inoculum, the methods and the sites of the first and the superinoculations, and the reaction of the animal to the first inoculation (*31*)), the results of these studies are not directly applicable to man. Animal studies, however, serve to indicate certain trends which may be the modus operandi of human reinfection. The Sing Sing Prison study by Magnuson, Thomas, Olansky, Kaplan, DeMello and Cutler (*44*) in which nonsyphilitic and syphilitic human volunteers were inoculated intracutaneously with virulent *T. pallidum*, and also heat-killed organisms were inoculated in patients previously treated for early syphilis, points the way to future possibilities. Clinical studies of reinfection in man, in spite of the best efforts of competent observers in the pre-penicillin era, yielded only inferential evidence for the existence of the possibility of a second infection with syphilis. Deliberate attempts to reinoculate syphilitics with treponemes had yielded some so-called superinfections but reinoculation of cured syphilitics has rarely been successful (*45*) until the Sing Sing study. Since we have no absolute criteria of biologic cure nor adequate means to identify asymptomatic infections in man, it is possible that reinfection may take place on a scale larger than hitherto suspected. It is hardly likely that any amount of discussion of the results of the experiments of the past, regardless of their value, will lead to a definitive opinion as to the possibility of superinfection or reinfection for the individual.

Prophylaxis

Individual prophylaxis against the treponemal infections has received considerable attention, chemical treatment, and recently antibiotics of all types. The mass campaigns of treatment of endemic foci of treponematoses are in effect a mass prophylaxis intended to eradicate possible sources of further exposure. Although the efforts in some areas have resulted in a hard core of cases, continued search for methods to effect eradication or prevention is necessary. Periodic treatment of prostitutes with penicillin derivatives, advocated by Durel (*46*) is an application of the mass treatment principle to a specific group.

A suitable means of immunization is still far from available. To what extent yaws confers protection against venereal syphilis has long been unanswered.

Treatment Problems

It is hardly necessary to elaborate the present status of the treatment of syphilis. With the advent of penicillin therapy all seemed settled. But even now we are faced with gaps in our knowledge of the usefulness of treatment and the proper modes of therapy. Much has been learned about the action of the antibiotics as a result of the intensive study of the past two decades but we are still lacking a really satisfactory drug. It is becoming more apparent that the presently used drugs are reaction-producing, especially penicillin, and the long-term effects, the usefulness of antihistamines and cortisone (*47*, *48*, *49*, *50*) with the antibiotics have not received full enough study. Although we recognize the great advances represented by our present armamentarium, we still need for venereal syphilis and for endemic treponematoses, safe, effective convenient and inexpensive preparations or combination of medicaments.

Prognosis

Although remarkable retrospective studies of the effects of syphilis have been made, (*51*, *52*, *53*, *54*, *55*, *56*, *57*, *58*, *59*, *60*, *61*) the prognosis for the individual with a treponematosis still needs means for determining the investigation. The effects of age, sex, color and race, socioeconomic considerations and therapy represent

only a few of the factors determining the ultimate outcome of a treponemal infection.

Epidemiology and Public Health

Although there are some differences in the problem involved in the biology and clinical aspects of venereal syphilis and the treponematoses, there is most variance of the problems between these two types of treponemal infections in the field of epidemiology. In endemic treponematoses, mode of transmission, mode of entry of the treponemes into the body, the influence of geographic ecology, socioeconomic and hygienic factors, penicillin from whatever source, age incidence, effects of other diseases, cross immunity between syphilis and yaws, represent some of the major considerations.

In venereal syphilis some of the problems are the same, but we need to know what beside penicillin has caused the recent decline and conversely, what are the factors in the present upswing; different legal, local and ecologic factors in different countries. The private physician's role in epidemiology (*62*, *63*) migrants, teenagers, prostitutes and homosexuals; new methods of case finding; value of prenatal and premarital test; cluster testing; and best methods of education. The recently organized government task force includes among its six-point ten-year goal: Development of a comprehensive and dynamic education program for professional workers and the general public; continuation of research in syphilis immunology, therapy and laboratory procedure, together with greater expansion of research in adolescent and young adult sex behavior.

Of special interest are the importance of prostitution, the teenagers and homosexuals as factors in transmission of venereal syphilis. It is not possible to determine to what extent syphilis is due to prostitution. Only those caught are counted. It is probably a great factor (*64*, *65*, *66*). Loeb (*67*) predicts that while the teenage population of the United States is now 17 per cent of the total population, by 1965 it will be 19 per cent. Many of these will come from the rural to the urban areas. Boys and girls have many emotional problems, are promiscuous and indulge in hetero and homosexual activity. Female homosexuality appears to be no problem in transmission of venereal disease—why? The role of homosexuals in transmission of syphilis is beginning to become clear (*68*, *69*).

This survey of the future needs for research in the treponematoses is conspicuous by its relatively sketchy outline of some of the problems in need of and available for study. More detailed lists of problems are available (*WHO Tech. Rep. Ser.*, 1960) but the present account should be adequate to indicate that the treponematoses still offer a fruitful field for study for all types of investigators, problems which must be solved if these diseases are to be eradicated (*70*). Fiumara (*71*) has aptly summarized the needs: "It is important to realize that the venereal diseases cannot be eradicated by present control methods alone. Until new and better procedures can be devised, all that clinical and public health medicine can expect is a reduction of these diseases. How much they can be reduced depends directly upon the efficiency of practitioners in both groups."

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Therapy of Syphilis and Other Treponematoses

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ABSTRACT

In the mid-thirties treatment for early infectious and latent syphilis consisted of continuous alternating courses of an arsenical and bismuth for a period of approximately 70 weeks. During World War II shortened schedules were utilized at in-patient care facilities known as "Rapid Treatment Centers," where new methods were used.

Since its discovery, penicillin has remained the drug of choice for the treatment of syphilis. Dosage-forms have been developed for out-patient therapy which permit the treatment of early infections by a single injection. Similar advances have not been made with the other antibiotics. Detailed schedules for treatment with penicillin are listed.

The danger of penicillin anaphylaxis is noted and the necessity for adequate emergency measures is pointed out.

For patients who are sensitive to penicillin, erythromycin and tetracycline are recommended as alternate treatment for syphilis.

With regard to therapy of yaws, the fourth report of the Expert Committee on Venereal Infections and Treponematoses recommended the dosages of PAM for both adults and children. The Second International Conference on the Control of Yaws further defined this recommendation.

PAM has also been used in mass treatment campaigns for eradication of pinta.

Because of the outstanding success and relative low cost of penicillin, there have been few trials of other antitreponemal drugs in the therapy of yaws, pinta and other treponematoses.

SOMMAIRE

Vers le milieu de la décade 1930–1939, le traitement de la syphilis infectieuse à ses débuts et de la syphilis latente consistait en une série continue d'un médicament à l'arsenic alternant avec du bismuth pendant une période d'environ 70 semaines. Pendant la Deuxième Guerre Mondiale, on abrégea cette durée dans des services pour malades hospitalisés connus sous le nom de "Centres de traitement rapide" qui employaient des méthodes nouvelles.

La pénicilline est restée depuis sa découverte le médicament de choix pour le traitement de la syphilis. Diverses posologies ont été mises au point pour la thérapeutique des malades ambulatoires, permettant de traiter les infections récentes en une seule injection. On n'a pas accompli de progrès semblable avec les autres antibiotiques. Une posologie détaillée est donnée pour le traitement à la pénicilline.

Mention est faite du risque de réaction anaphylactique à la pénicilline. On souligne la nécessité de mesures d'urgence appropriées.

Pour les malades qui ne supportent pas la pénicilline, on recommande l'érythromycine ou la tétracycline comme traitement de substitution.

En ce qui concerne la thérapeutique du pian, le quatrième rapport du Comité d'Experts sur les Infections Vénériennes et les Tréponématoses a recommandé les doses de pénicilline au monostéarate d'aluminium à la fois pour adultes et pour enfants. La Seconde Conférence Internationale sur la Lutte contre le Pian a ajouté des précisions supplémentaires à ces recommandations.

La pénicilline au monostéarate d'aluminium a également été employée dans les campagnes générales de traitement pour la suppression de la pinta.

En raison du succès remarquable et du coût relativement peu élevé de la pénicilline, on n'a essayé qu'un petit nombre d'autres drogues antitréponémiques dans la thérapeutique du pian, de la pinta et des autres tréponématoses.

RESUMEN

A mediados de la década de 1930, el tratamiento de principios de infecciones y de sífilis latente, consistia en aplicaciones alternas y continuas de arsénico y bismuto por más ó menos 70 semanas. Durante la Segunda Guerra Mundial, se usaron periodos más cortos en establecimientos para el cuidado de pacientes internos, llamados "Centros de Tratamiento Rápido," y donde se usaron nuevos métodos.

Desde que fué descubierta, la penicilina es la droga preferida para tratar la sífilis. Existen dosis especiales para el tratamiento de pacientes ambulatorios, que permiten dar cuenta de los principios de infecciones con una sola inyección. No se han hecho adelantos similares con otros antibióticos. Existen procedimientos detallados sobre cómo seguir el tratamiento con penicilina.

Deje hacerse notar el peligro de alergia a la penicilina, así como señalar la necesidad de tomar medidas adecuadas de emergencia.

Se recomienda la alternativa de usar eritromicina y tetraciclina para el tratamiento de la sífilis en los pacientes alérgicos a la penicilina.

Para el tratamiento de la frambesia, el cuarto informe del Comité de Expertos sobre Contagios Venéreos y Treponemas, recomendó el uso de dosis de PAM en adultos y niños. La Segunda Conferencia Internacional sobre el Control de la Frambesia, definía aún más esta recomendación.

PAM también ha sido usada en capañas de tratamiento en masa para la erradicación del mal del pinto. Debido al gran éxito de la penicilina y a su relativamente bajo costo, sólo han habido pocos experimentos para usar otras drogas antitreponemas, en el cuidado de la frambesia, mal del pinto y otros treponemas.

APPROXIMATELY 35 years ago the Health Section of the League of Nations initiated an evaluation of treatment for syphilis. Leading European and American clinics were invited to pool their records for the first cooperative effort to establish an effective regimen for the treatment of syphilis. This international investigation was the stimulus for similar but more comprehensive cooperative endeavors.

Cooperative Clinical Group Studies

In the United States, syphilologists from five of the clinics participating in the League of Nations Study formed what was known as the Cooperative Clinical Group. In collaboration with the U.S. Public Health Service, this group functioned for many years, studying the various stages of syphilis and establishing standard procedures for their treatment. For early infectious and latent syphilis, the schedule recommended by the Group and the one which formed the basis for the intensive syphilis control program launched in the United States in the mid-thirties was continuous treatment of alternating courses of an arsenical and bismuth for a period of approximately 70 weeks. Because of the tremendous case-holding problem, the completion of this schedule was a goal seldom attained. The necessity for shorter, more practical schedules was obvious and efforts toward this end met with some degree of success in the development of treatment such as intravenous drip, intensive multiple-injection schedules and the somewhat more conservative "Eagle" therapy.

With the advent of World War II, these shortened schedules were utilized in in-patient care facilities known as "Rapid Treatment Centers," which were established throughout the United States to render large number of patients noninfectious in the shortest possible time. These schedules were used with success, but not without danger, until the penicillin era.

The early studies of the Cooperative Clinical Group, in general, were retrospective in nature and left much to be desired. The experience gained, however, was invaluable. They established the mechanism for conducting evaluations of therapy for diseases requiring prolonged post-treatment observation and set a precedent for cooperation in the pooling of records so that significant information could be accumulated in a short period of time. When penicillin was discovered effective and became available for the treatment of syphilis, it was logical that one of the members of the Cooperative Clinical Group should be selected by the National Research Council to conduct a nation-wide evaluation of this drug.

Evaluations of Penicillin Therapy

Through the cooperation of the principal university clinics, the Armed Services, and State and local treatment centers sponsored by the Public Health Service, information which normally would have taken years to accumulate was telescoped into months. The optimal dosage for early syphilis, the height and duration of treponemicidal blood levels, and the fraction of penicillin most effective for syphilis were soon established. Thus the treatment of syphilis was revolutionized in a period of about two years. Continuing studies proved the efficacy of penicillin, regardless of the duration of pregnancy, in the prevention of congenital syphilis and its effectiveness, without adjuvant therapy such as malaria, in the treatment of neurosyphilis.

The Nation-wide evaluation of penicillin, as with any evaluation requiring prolonged post-treatment observation, was based on incomplete information. Two assumptions were made: One, that patients lost from observation had the same experience as those observed; and, two, that penicillin would be as effective in preventing late complications of syphilis as in preventing early relapses. In 1945 the Public Health Service initiated a study to evaluate the long-term effectiveness of penicillin in the treatment of early syphilis and having as its goal post-treatment observation approaching 100%. Over 1500 patients were included in the study. In 1951, more than five years after the study was initiated, 90% of the patients were still under observation and 91% of scheduled examinations had been completed. The total study group included 956 patients with early infec-

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tious syphilis who were treated with penicillin alone in dosages ranging from 2,400,000 to 4,800,000 units. Following the initial course of treatment, the cumulative retreatment rates were 13% for primary syphilis and 16% for secondary syphilis. However, when the study was terminated in 1957, 98% of patients initially treated for primary syphilis and 96% of those initially treated for secondary syphilis were serologically and clinically negative on final examination. Although 735 patients were observed for four years or longer and 154 were observed for eight to 11 years, clinical progression to late syphilis (symptomatic neuro-syphilis) was observed in only one patient and this occurred during the fifth year of post-treatment observation.

Therapy evaluation has continued as a routine function of the Venereal Disease Branch. However, the rapid drop in incidence of syphilis in the post-war years and the shift of cases from clinics to private physicians has limited the clinical material available for study. Evaluations of necessity have been confined principally to new penicillin-preparations and to drugs which might be used as alternatives for penicillin treatment.

Other Antibiotics

Penicillin has remained the drug of choice for the treatment of syphilis and dosage-forms have been developed for out-patient therapy which permit the treatment of early infections by a single injection. Similar advances have not been made with the other antibiotics. Although many have been demonstrated to be effective antitreponemal agents (e.g., chloramphenicol, chlortetracycline, oxytetracycline, and erythromycin), there is today no injectable preparation available which is practical for out-patient therapy. At best, daily injections are required. Local pain of injections and cost make this form of therapy impractical. Oral therapy, which is not recommended for the type of patient usually seen in venereal disease clinics, is reserved for patients who are sensitive to penicillin.

Most evaluations of the other antibiotics have involved use of fairly large dosage schedules (40 to 60 grams) in small groups of cases. An evaluation to establish the minimum dosage requirements of propionyl erythromycin has recently been completed by the Public Health Service. The initial schedule consisted of a total of 10 grams administered over an 8 to 10 day period. Two hundred and twenty-five patients were treated on this low-dosage schedule and 113 completed the planned one year of observation. The Cumulative retreatment rate at the 12th month was 30%—26% for seronegative primary, 22% for seropositive primary, and 41% for secondary syphilis. The majority of those re-treated were classified as treatment failures rather than reinfections. Because of this high failure rate, the schedule was increased to 15 grams and later to 20 grams. With the three schedules weighted by 16% seronegative primary, 44% seropositive primary and 40% secondary syphilis, the cumulative retreatment rates for the three schedules, respectively, are 30%, 13%, and 8%. All patients re-treated following 20 grams of erythromycin were classified as reinfections.

Recommended Treatment Schedules

On the basis of the studies outlined, or by inference, the following schedules are presently recommended by the Public Health Service for the treatment of syphilis:

For primary or secondary syphilis and latent syphilis with negaspinal fluid:

Benzathine penicillin G: a total of 2,400,000 units in a single session, 1,200,000 units in each buttock; or

Procaine penicillin G in oil with aluminum monostearate (PAM): a total of 4,800,000 units with 2,400,000 units administered at the first session (as with benzathine penicillin) followed by two injections of 1,200,000 units each at 2- to 3-day intervals; or

Aqueous procaine penicillin G: a total of 4,800,000 units administered in daily injections of 600,000 units each.

For latent syphilis with no spinal fluid examination, the possibility of asymptomatic neurosyphilis must be considered. In such instances it is recommended that the dosage for benzathine penicillin G be increased to 4,800,000 units—2,400,000-unit sessions a week apart.

For late syphilis (including symptomatic and asymptomatic neurosyphilis, cardiovascular, osseous, cutaneous, and visceral) a total dosage of 6,000,000 to 9,000,000 units, administered as follows:

Benzathine penicillin G: 3,000,000 units at 7-day intervals; or

PAM: 1,200,000 units at 3-day intervals; or

Aqueous procaine penicillin G: 600,000 units daily.

Any benefit from more than 10,000,000 units has not been demonstrated.

For early congenital syphilis (children under two years of age) treatment is adjusted to body weight, as follows:

> *PAM or aqueous procaine penicillin G:* a total of 100,000 units per kilogram, given in divided doses at 2- to 3-day intervals, or
>
> *Benzathine penicillin G:* a total of 50,000 units per kilogram administered in a single intramuscular injection.

For late congenital syphilis, treatment is the same as for corresponding stages of acquired syphilis. However, in children under 12, dosage should be adjusted to age and body weight. Interstitial keratitis usually does not respond to penicillin; the addition of corticosteroids, applied locally to the eyes, is recommended.

Penicillin Allergy

Unfortunately, there are individuals who are allergic to penicillin. The true incidence of reactions is difficult to determine from venereal disease clinic patients since the majority are treated for gonorrhea by single-injection therapy and little post-treatment observation is attempted. However, from surveys conducted by the Public Health Service in 1954 and in 1959, a conservative estimate would be about 5%. Urticaria is the most frequent type of reaction reported.

Anaphylaxis is rare, but may be expected to occur in one out of every 1,000 patients treated. And in one of every three patients experiencing anaphylaxis, the reaction will be severe enough to require hospitalization. In addition to taking a careful history of penicillin sensitivity and of other allergy, it is therefore recommended that patients be observed for approximately 30 minutes following intramuscular injection of penicillin and that all treatment rooms, whether in clinic or private physician's office, be equipped to deal with any emergency which might arise. Prompt and adequate measures may mean the difference between life and death.

Except in unusual circumstances penicillin should never be administered to a patient who has had a previous reaction to it. A reagent for detecting penicillin sensitivity has recently been developed by Drs. Parker and DeWeck in the laboratory of Dr. Eisen at Washington University. A pilot study conducted by Dr. Shapiro at the St. Louis Venereal Disease Clinic indicates that this reagent, penicilloyl-polylysine, provides a safe and accurate intradermal skin test for penicillin allergy. A more comprehensive evaluation is being conducted by the Public Health Service at this time.

For patients who are sensitive to penicillin the following drugs and dosage schedules are recommended as alternate treatment for syphilis.

> *Erythromycin:* a total of 20 to 30 grams, given in four 500-mgm. doses daily for a period of 10 to 15 days; or
>
> *Tetracycline:* a total of 30 to 40 grams, given in four 500-mgm. doses daily for a period of 15 to 20 days.

Close posttreatment observation should accompany the use of these drugs since there can be no certainty that patients treated on oral therapy have followed the prescribed schedule.

Therapy of the Other Treponematoses

On the therapy of yaws the fourth report of the Expert Committee on Venereal Infections and Treponematoses recommended that the minimal total dosage of PAM for adults with early infectious yaws should not be less than a single injection of 1.2 mega units; that children should receive smaller dosage, and that contacts should be given a dose not less than 0.6 mega units.

At the Second International Conference on the Control of Yaws the recommendations were further defined: Persons under 15 should be given 0.6 mega units PAM for early and late active cases and 0.3 mega units for latent cases and contacts; those 15 years or older would receive 1.2 and 0.6 mega units, respectively.

The dosage used in the Haitian yaws campaign was 0.6 mega units for active yaws and 0.3 for contacts. Trials suggested by the Eastern Nigeria Health Administration comparing the Haitian dosage with the larger WHO dosage showed "there is little or no difference in the results in early cases of yaws after 0.6 or 1.2 mega units but in late lesions the results after the larger dose are better."

The Committee was of the opinion that the WHO recommended dosage in endemic treponematoses campaigns should be continued.

In most of the pinta mass treatment campaigns a dosage of 1.2 mega units of PAM has been used. The use of aqueous or oily suspension of benzathine penicillin in the therapy of treponematoses other than syphilis has been considered and reported on in a few instances. Although the longer sustained blood levels are of some advantage the preparations are more

expensive than PAM and produce slightly more local discomfort.

The problem of hypersensitivity reactions to penicillin have not been reported as an obstacle to mass yaws campaigns, there being less than one fatality per one million persons treated in the campaigns reported.

Due to the outstanding success and relative low cost of penicillin there have been few trials of other antitreponemal drugs in the therapy of yaws, pinta and other endemic treponematoses. The tetracyclines and erythromycin, in particular, have appeared to be as effective in the other treponematoses as in syphilis.

Problems in Diagnosing Syphilis and Other Treponematoses Throughout the World

JOHN C. HUME, M.D.

ABSTRACT

Treponemal diseases display similar clinical and serologic manifestations and the variations are largely quantitative. The major difference is between the types of tissue involved in the later stages. Even in terms of response to therapy the differences are quantitative.

The major problem in diagnosis is the decision as to what should constitute a diagnosis in any particular area of the world, since no general rule for this can be applied. What we need to know is by whom the diagnosis is to be made, what diagnostic work is to be done to whom, and how much is to be done.

Generalized treatment with antibiotics obscures knowledge of the extent of the disease, but subcurative therapy is probably on the whole helpful to the community.

How far prophylactic therapy should be extended is a subject of importance. It is often considered justified as a community health measure in the case of a pregnant woman known to be a contact and even in that of all sexual contacts of cases of infectious syphilis.

SOMMAIRE

L'aspect principal de cette étude consiste dans la relation entre les problèmes de diagnose et ceux de la santé publique.

Les maladies tréponémateux manifestent des signes cliniques et sérologiques analogues, et les variations sont surtout de l'ordre quantitatif. La différence principale se révèle entre les types de tissus dans les phases tardives. Même du point de vue de la réaction à la thérapeutique, les différences sont quantitatives.

Le problème diagnostique le plus important, c'est la décision quant à ce qui doit constituer un diagnostic dans une région donnée du monde, puisqu'aucune règle générale ne peut s'appliquer dans ce domaine. Il faut savoir par qui le diagnostic sera fait, quel genre de travail diagnostique sera entrepris et sur quel sujet, et quel degré d'approfondissement diagnostique sera appliqué.

Le traitement généralisé au moyen d'antibiotiques obscurcit la connaissance de l'étendue de la maladie, mais, tout compte fait, la thérapeutique sous-curative est probablement avantageuse pour la communauté.

Jusqu'où doit être poussée la thérapeutique prophylactique est une question importante. Elle est souvent considérée justifiée en tant que mesure sanitaire pour la communauté dans le cas de la femme enceinte que l'on sait être un contact, et même dans celui de tous les sujets en contact sexuel avec des cas de syphilis infectieuse.

RESUMEN

Las enfermedades causadas por treponemas despliegan manifestaciones clínicas y serológicas similares y las variaciones entre ellas son en su mayoría de cantidad. La diferencia principal la causan los tipos de tejidos de las últimas etapas. Existen diferencias cuantitativas aún en relación con la reacción a la terapia.

Puesto que no existe una norma general que dicte la pauta a seguir, lo que hay que decidir es que debe constituir un diagnóstico en cualquier parte del mundo. Lo que necesitamos sabes es a quien le corresponde dar el diagnóstico, a quien se le debe proporcionar el tratamiento, qué tipo de tratamiento se debe dar y por cuánto tiempo.

El tratamiento generalizado con antibióticos limita conocer hasta que punto se ha extendido la enfermedad, sin embargo la terapia como elemento subcurativo probablemente es de alguna ayuda para la localidad.

Un tema de importancia es el de determinar hasta que punto se debe extender la terapia profiláctica. A menudo se justifica como una medida de salud en el caso de una mujer embarazada que constituye un contacto, y hasta en el caso de contactos sexuales de casos de sífilis infecciosa.

THE TITLE of this paper is sufficiently general and broad to make it advisable to attempt some prefatory definition of the subject. There will be a review of the etiology and natural history of the treponematoses. Brief consideration will also be given to some of the experimental work (*1*) which has a bearing on the diagnosis of this group of diseases. Finally, some of the specific problems in diagnosis which are of importance and general interest will be discussed. No effort is made to cover the literature *in extenso* and certain diagnostic

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problems of major importance such as biologic false positive serologic tests and the whole subject of serodiagnosis are arbitrarily omitted. The major emphasis is on the interrelation of diagnostic and public health problems.

The Treponematoses

In Table 1, information regarding venereal syphilis, endemic syphilis, yaws and pinta is presented which summarizes our knowledge regarding the etiologic agent, the clinical course in man and certain aspects of the epidemiology of each disease. In this table and elsewhere in the paper, the term "endemic syphilis" includes those manifestations of treponemal disease referred to by such words as bejel, dichuchwa, or njovera in various areas of the world.

It will be noted that while different names are ascribed to the treponemes of syphilis, yaws and bejel (*pallidum*, *pertenue* and *carateum* respectively), the demonstrable differences among them are limited to their behavior in animals and even here are quantitative rather than qualitative and are not constant or definitive. Given a strain of treponeme, the source of which was unknown, it would be impossible incontrovertibly to establish with techniques currently available that it was originally from a case of venereal syphilis, endemic syphilis, yaws or pinta. In fact, some strains from human yaws cases which produce lesions in rabbits considered to be typical of yaws have after several passages through rabbits come to produce lesions considered to be typical of venereal syphilis. The reverse trend has not been noted.

In reviewing the clinical information one is struck again with the similarities among the various manifestations of treponemal disease. They all have initial lesions followed by more extensive "secondary" manifestations and all exhibit the phenomenon of latency. The major difference is in the types of tissue involved in the late stages. Even in terms of response to therapy, the differences are quantitative. In general it may be said that venereal syphilis is the most protean in its manifestations and that virtually any lesion produced by the other three entities may be produced by it. The spectrum of pathologic response seems to narrow as one considers in order endemic syphilis, yaws and pinta. Similarly, generalizations regarding response to therapy can be made. For example, more treatment is possibly required to effect a cure in venereal syphilis than endemic syphilis and certainly less is required for yaws than for syphilis. While the clinical response of skin lesions of pinta to treatment is apparently slower than for syphilis or yaws, the amount of treatment required to effect the response is presumably no greater than for yaws.

It is in dealing with epidemiologic information that the major differences among these diseases appears. The ubiquity of venereal syphilis is striking as compared to the truly focal and limited area where pinta is found. Endemic syphilis and yaws are intermediate in this respect. These differences are paralleled by the mode of transmission: venereal syphilis largely spread through sexual contact; the others, largely non-venereal. The above differences apparently are all determined to a great extent by the social and physical environment in which the host finds himself: the more primitive the culture, the less venereal transmission. It is believed by many that these environmental differences are the real determinants of the differences among the strains of treponemes, the manifestations in the individual human host and the human population as a whole in a given area. Certainly the variation in mode of transmission, the age distribution of the disease, the early and, possibly, even the late manifestations of the disease in the individual can be logically explained on this basis.

Before leaving this portion of the discussion, it should be pointed out that there have been many observations made during the study of experimental and naturally occurring syphilis which tend to support this view. One, the change in the types of lesions produced by strains following passage in rabbits, has already been mentioned. Another bit of evidence of great pertinence has to do with the effect of temperature. Both *in vitro* and *in vivo* experiments indicate that the optimum temperature for the treponemes is 35°–37° C.; that as 40° C. is approached or exceeded there is progressive destruction of treponemes, and as the temperature falls below 30° C., multiplication ceases. These facts certainly have major implications regarding the location and nature of lesions in the individual and thus, indirectly, for the mode of transmission. Elevated temperature in a host as a result of intercurrent infection could affect ease of infection and the relative frequency of late manifestations in a population. Other factors studied which may have significance included the variation in manifestations of disease relative to the age of the host at the time of infection; the effect of the health status of the rabbit host on ease of infection; hormonal effects on manifestations of disease; site of inoc-

Table 1. Summary presentation of information regarding the etiologic agents, clinical course in man, and certain epidemiologic aspects of syphilis (venereal), endemic syphilis, yaws and pinta

	Syphilis (venereal)	Endemic syphilis	Yaws	Pinta
1. The etiologic agent:				
a. Name	*T. pallidum*	*T. pallidum*	*T. pertenue*	*T. carateum*
b. Microscopic characteristics:				
(1) Morphology	(Indistinguishable)			
(2) Motility	(Indistinguishable)			
c. Antigenic relationships (in animals):				
(1) Serologic tests	(Apparent strain differences even in same species but no constant differences)			
(2) Cross-immunity	(Definite between species but not equal for all: syphilis tends to produce greater protection against endemic syphilis than against yaws)			
d. Susceptibility to penicillin	(No significant differences *in vitro* or in laboratory animals)			
e. Experimental disease in animals:				
(1) Establishment of strain	Relatively easy	Relatively easy	Relatively easy	Extremely difficult.
(2) Inoculation period (days):				
(a) Number of strains.	31	5	11	
(b) Minimum-maximum.	14–82	53–70	28–75	
(c) Median	40	67	52	
(3) Lesions (rabbits) induration and size.	Generally more	Generally intermediate.	Generally less	
	(Differences not constant or absolute)			
2. Clinical information:				
a. Incubation period (days):				
(1) Range	10–90	10–90	10–90	7–20.
(2) Median	21	42(?)	21–42(?)	(Human inoculations.)
b. Natural course:				
(1) Initial lesions	Usual	Occur (commonly not noted).	Usual	Occur.
(2) Latency	Practically universal			Occurs.
(3) Late "benign"	Not uncommon	Common	Usual	Usual.
(4) Cardiovascular system	Not uncommon	Occurs	Not proved	No.
(5) Central nervous system	Not uncommon	Occurs	Not proved	No.
c. Serologic findings with Wassermann or treponemal antigens.	(All positive; no definite or constant differences demonstrated)			
d. Response to antibiotics, arsenicals and heavy metals.	(All respond but time-dose requirements for cure vary)			
3. Epidemiologic information:				
a. Distribution	World-wide	Endemic, rural, focal, less developed areas.	Endemic, rural, focal, but widespread in tropical areas, primitive setting.	Endemic, rural, focal, underdeveloped areas, tropical America.
b. Main reservoir (human only)	Young adults	Children (2–10 years).	Children (4–15 years).	Young persons (10–30 years).
c. Transmission:				
(1) Person to person:				
(a) Venereal	Common	Uncommon	Uncommon	Not described.
(b) Non-venereal	Uncommon	Common	Common	Common.
(c) *In utero*	Not uncommon	Unusual	Never (some contrary opinion) (*2*).	Not described.
(2) Indirect:				
(a) Utensils, flies, etc.	Rare	Probably not uncommon.	Possibly not uncommon.	Not described.
d. Susceptibility of man	Universal	Universal	Presumably universal.	Presumably universal.
e. Period of communicability in man	Variable; during primary and secondary stages; (?)2–4 years.	Variable; while moist skin and mucous membrane lesions present; (?)weeks to months.	Variable; while moist lesions present; (?)several years.	Unknown; potentially while active skin lesions present.

ulation; effect of dosage on incubation period and number of lesions; the optimal conditions provided by moisture and relative anaerobiosis; and the effect on infectiousness of lesions of "sensitization" of treponemes with the development of immunity in the host. Since, however, the purpose of this discussion is to provide a basis for considering certain problems in diagnosis and not to support or deny the unitarian concept of "treponematosis," it does not seem profitable to pursue this aspect in further detail.

Differentiation from Non-Treponemal Disease

Let us now consider briefly the differentiation of treponemal from non-treponemal disease. Suffice it to say that the vast majority of cases of treponemal disease may be readily differentiated from non-treponemal disease by the application of simple history-taking techniques, physical examination, and serologic tests. Where available, darkfield examination adds a great deal to precision of diagnosis. In a small minority of cases, on a world-wide basis, the ruling out of other disease processes including biologic false positive serologic tests may test the mettle of the most skilled clinician, indeed, it may be impossible. This latter group of cases are certainly of extreme importance to the individual patient and physician. The higher the level of medical practice and the lower the prevalence of treponemal infection in a nation or community, the more importance these problems assume. Nevertheless, in terms of global problems of control or eradication and of numbers of persons involved, they currently are of far less import than certain other difficulties which will be discussed later.

Differentiation Among the Treponemal Diseases

Differentiation of the treponemal diseases, one from the other, has already been touched upon. It has been pointed out that the clinical and serologic differences are largely quantitative in nature and in the individual patient it is difficult or impossible to distinguish one form from the other on these grounds alone. For example, we have seen in the Johns Hopkins Hospital a patient with signs, symptoms and laboratory evidence absolutely typical of pinta. However, the diagnosis made was that of syphilis since she had never been more than 50 miles from Baltimore in her life. Similar experiences occur in all large clinics, and venereal syphilis, endemic syphilis and yaws even more frequently present confusing similarities of expression. In areas where patients are seen who come from both "syphilis areas" and "yaws areas" this may be an interesting problem as recently discussed by Laird (*3*). In terms of precision of diagnosis and personal clinical satisfaction, this is a problem of importance. In terms of successful management of the patient and protection of the public health, however, it has little significance under most circumstances. If treatment adequate for the cure of syphilis is administered, the patient is cured and the public health is protected. The coexistence of venereal syphilis in an urban area and yaws in the surrounding rural areas with varying admixtures of each will of course have real significance for the planning of campaigns against the treponematoses.

Major Problems in Diagnosis

To paraphrase the punch-line of an old joke known to most syphilologists in this country: what we need to know is by whom the diagnosis is to be made, what diagnostic work is to be done to whom, and how much is to be done.

The question of by whom the diagnosis is to be made is a most pressing problem in most areas though there are two aspects. The first is in those areas where there is a favorable physician to population ratio and a low treponemal disease rate. Here arises the paradoxical situation of more and more physicians knowing less and less about treponemal disease as the disease rates fall, clinical material becomes less available for teaching, and the problem assumes less and less importance, not only in the mind of the public in general but among legislators, public health officials, and practitioners and teachers of medicine. There is no ready and universally applicable panacea for this. Basically the answer lies in keeping the importance of the problem before each of the groups mentioned and encouraging clinical teaching personnel to maintain an awareness of the presence and importance of the treponematoses and to take advantage of each opportunity to utilize clinical material both intramural and extramural as it becomes available.

The other aspect of the problem is seen in areas where the physician to population ratio and at times the calibre of physician is low and the prevalence of treponemal disease is high. In this situation there are two approaches. One, a long-term solution, is the development of more and better educational institutions. The other is modification of control programs so that highly trained professional persons are re-

quired only in relatively few top-echelon positions. The national yaws campaigns currently in force have all planned their programs so as to minimize the number of professional workers employed.

The questions of what diagnosis and how much diagnosis can be discussed together. These are primarily functions of the supply of trained personnel, the magnitude of the treponematosis problem, the fiscal resources of the nation or community and, hence, the physical resources including transport, communications, laboratory facilities and supplies, and medical supplies and equipment. Upon these variables depends the answer to these questions. One facet to this problem, the question of treatment before diagnosis, was covered in discussions which had some of the aspects of a debate, by Willcox (*4*) and King (*5*) before a meeting of the Medical Society for the Study of Venereal Diseases in London. While the pros and cons were covered logically and in detail, the product, at least in my interpretation, amounted to the following. There is no one rule which applies to all situations. In England and similar countries with excellent personnel and diagnostic facilities and a relatively small problem, obviously the individual should have the benefit of the best possible diagnostic workup before treatment is initiated. In a country with a big problem, limited personnel and fiscal resources, this may not be the case and a decision such as that taken in Haiti, where virtually the entire population was covered and given penicillin, is perfectly justifiable. In this latter situation, the alternative would be to wait many years before effective treatment could be brought to the population. Decisions in intermediate situations are difficult and in any area where antibiotics are generally available the dangers of sensitization must be weighed carefully in arriving at the decision. Even where the decision is made to require a diagnosis before treatment, many compromises must be made with the ideal diagnostic approach if a campaign is to be mounted.

What constitutes a diagnosis? A mere statement by the patient that he has or has had yaws? Physical signs compatible with yaws? Serologic or darkfield evidence of yaws? Each, alone and various combinations, of these has been used. Certain guidelines, which have been established by the World Health Organization as the result of experience in many countries, have been discussed by such authors as Guthe (*6*) and Hackett (*7*). This subject represents possibly the greatest diagnostic problem today and there appear to be no right and wrong answers, only better and worse ones depending upon, to introduce a novel phrase, the local conditions. It is interesting to speculate as to where elimination of the treponeme will first be achieved in the advanced, industrial nations or in rural, primitive situations. I suspect it may well be in the latter.

The final question—to whom it is to be done, is less easy to answer than formerly. Obviously, some level of diagnosis (even if it consists only of considering as a case all members of a community with a tremendously high level of prevalence) is to be carried out on suspected cases, or as a part of a routine, careful physical examination. The crux of this question comes in arriving at a decision as to what groups of persons are to be screened in case-finding campaigns. In a country such as the United States of America, where rates have fallen, and financial and public support of control efforts have dwindled, the elaborate and well-staffed control programs of earlier years have been drastically and probably inevitably cut back. This means that the more limited resources must be used carefully to assure the greatest possible return in infectious cases located, diagnosed and treated. How much of the effort must be directed toward the location of contacts of early cases? Should effort be expended in the location and examination of associates of early cases? Should efforts and funds be spent in maintaining and expanding the remaining serologic dragnets and if so at which groups should the nets be cast? Efforts to refine the definition of high yield groups in a population have been made in this country since the National Venereal Disease Control Act was passed in 1937. They still continue. This remains a major diagnostic problem in the sense that if cases are not located and examined, they cannot be diagnosed.

Some Special Problems

In this last section we shall consider briefly some aspects of treatment before diagnosis which were not discussed previously since they are more or less special cases and not directly a part of the general problem.

First, there is and will continue to be a considerable amount of inadvertent treatment of treponemal disease with penicillin and other antibiotics. The extent to which this occurs in a nation is dependent to a large degree upon the availability of medical care and of the antibiotics. The more readily available these are, the more they are used. The more they are used,

the more persons with unrecognized treponemal disease receive varying types and amounts of antibiotics for intercurrent conditions. This may be helpful or harmful as regards his treponemal infection, depending upon the amount and duration of treatment. If it be adequate therapy, it has been helpful since the disease is cured regardless of the reason for therapy. However, much of such therapy is not adequate and we are faced with two questions to neither of which are precise answers available. The first of these has to do with the quantitative aspect: how many such persons are there in the population in the infectious or later stages? The second is: what effect does inadequate therapy have as regards both the patient and the community? The answer to the first is not known and only when we know the prevalence of treponemal disease (including the undiagnosed cases) and the "antibiotic status" of a given community can we estimate the extent of the problem. On the second point, we have quite precise information regarding the effect of inadequate penicillin therapy of rabbit syphilis during the incubation period. Hollander, Turner and Nell (*8*) demonstrated that the incubation period was prolonged but that otherwise the evolution of the disease was apparently unaltered. Similar effects in humans would not necessarily be harmful to the patient or the community. If, however, continued or repeated subcurative treatment is given, there is some question as to whether or not the process may be masked in such a way as to allow many cases unsuspectingly to enter latency and subsequently to develop unnoticed infectious relapse or late manifestations of the disease. It seems quite possible that this may indeed be the case. The disproportionate fall in reported primary and secondary syphilis as opposed to early latent syphilis in young adults noted in certain areas has been interpreted as confirmatory evidence. The possibility that subcurative treatment and consequent masking of symptoms is the cause of this discrepancy is postulated. Up to now the verdict must be "not proved." In a disease where a large portion of the cases have always reached latency without recognized symptoms of early disease, such evidence is less than conclusive even though suggestive. Certainly we do not know now and possibly never will know whether this inadvertent therapy is in balance more helpful than harmful in controlling the treponeme. I suspect that for the community it may well be more helpful.

Finally, let us consider very briefly certain situations in which in any country treatment before clinical diagnosis may be justified. In such situations one might claim that an epidemiologic diagnosis had been established. For many years in most medical centers, it has been considered proper to treat immediately individuals who have been exposed to infection by such accidents as pricking of the finger with a contaminated needle. Even in the arsenical era treatment was administered in certain of these accidents by clinicians of undoubted eminence and competence. With the advent of the safer and more efficient antibiotics, the frequency with which this was done increased and the criteria for taking such action were made less stringent, due attention being paid to the problem of sensitivity.

Now the matter of how far such prophylactic therapy can be reasonably and beneficially extended has become a subject of importance. Many experts will condone such practice in the case of the pregnant woman known to be a contact of infectious treponemal disease. Fewer, but still a great number, will recommend that all sexual contacts of cases of infectious syphilis be given therapy. In my mind there is no question that this course is justifiable as a community health measure. I believe that the hazards of potential psychological disturbances can be largely prevented by proper guidance and those of reactions to the antibiotic by proper management. Clinical medicine is based on the weighing of probabilities in diagnosis and the possible benefits vs. possible harm in therapy. Each clinician and public health worker must make many decisions on this basis. So long as this is true and there are not absolute answers to all diagnostic and therapeutic questions, there will be differences of opinion. In this particular instance it would appear to me that what is best for the community is also best for the patient.

To sum up, several problems related to the diagnosis of treponemal disease have been raised, some opinions expressed and no quick and easy solutions outlined. While the practicing syphilologist seems to be a species doomed to extinction in this country, the treponematoses are still with us and will continue to be for some time, though in the long run the treponeme also, it is hoped, is doomed. Until this happy state of affairs is reached there will continue to be problems facing the health professions in their

efforts to eliminate the treponeme, the problems will change in nature as progress is made toward the goal. Also until that goal is attained it is essential that an adequate group of interested, well-trained and dedicated workers be available to carry on the good fight.

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Syphilis Resurgent

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ABSTRACT

The sharply swinging curve of reported infectious syphilis incidence in the United States since World War II is typified by these high and low figures: 1947, over 106,000 cases; 1957 scarcely more than 6,000; tripling of the latter figure 1957–61 (although it has been estimated that the true incidence in 1959, for instance, was some 60,000 as compared to 8,200 primary-secondary cases reported).

This paper shows the importance of "happenstance cure" of syphilis by the aqueous suspension form of procaine penicillin, when administered for other ailments and in the absence of syphilis diagnosis, 1948–57.

In the 1950–60 decade the trend of antibiotic treatment has been away from penicillin and toward broad spectrum drugs. Add to that, that the U.S. population has increased by 19 per cent in the period.

In the light of the foregoing, it seems clear that happenstance therapy may have had a large role in shaping the roller-coaster incidence curve. In fact, the authors believe that the principal cause of the 1948–55 decline was intermittent treatment of the broad masses with spirocheticidal drugs.

As to the outlook for the future—with lesser use of penicillin, and unless the problem is met in a new way, the continuing upsurge seems likely. Intensification and expansion of the present V.D. control program does not appear to be the answer, because conventional treatment reaches only two classes: (1) diagnosed cases, usually after they have spread the disease to others; (2) known contacts, far outnumbered by the unknown ones.

The key to control—and possibly eradication—of syphilis is treatment in the pre-primary stage, so far only reached by chance therapy.

SOMMAIRE

La courbe aux brusques coudes qu'a décrite l'incidence déclarée de la syphilis infecticuse aux Etats-Unis depuis la deuxième guerre mondiale, se reflète dans les hauts et les bas suivants: en 1947, plus de 106.000 cas; 1957, un chiffre à peine supérieur à 6.000; enfin, triplement de ce dernier entre 1957 et 1961 (quoique l'on a estimé que l'incidence véritable en 1959, par exemple, fut de l'ordre de 60.000, contre 8.200 cas de syphilis primaire-secondaire déclarés).

Le présent document souligne l'importance de la "guérison par hasard" de la syphilis au moyen de la pénicilline proeaïnisée sous forme de suspension aqueuse, administrée pour d'autres malaises et en l'absence de diagnostique syphilitique, 1948–57.

Au cours de l'époque 1950–60, la tendance dans le traitement antibiotique a été de s'éloigner de la pénicilline et d'adopter de plus en plus les drogues dites à large spectre. Ajoutez à ceci le fait que la population américaine s'est accrue de 19 pourcent pendant la période en question.

En égard à ce qui précède, il semble manifeste que la "thérapeutique par hasard" peut avoir joué un rôle considérable dans le façonnage de la courbe d'incidence à l'allure "montagnes russes." D'ailleurs, les auteurs sont convaincus que la cause principale du déclin 1948–55 fut le traitement intermittent des grandes masses par les drogues antispirochètes.

Pour ce qui est de la perspective de l'avenir, avec l'emploi plus restreint de la pénicilline—et à moins de faire face au problème par une méthode nouvelle—l'essor ininterrompu paraît probable. D'intensifier et d'élargir le programme de contrôle vénérien actuel ne semble pas représenter la solution voulue, parce que le traitement conventionnel n'atteint que deux catégories: (1) les cas diagnostiqués, généralement après que ceux-ci ont propagé la maladie parmi d'autres; (2) les contacts connus, représentant un faible pourcentage relatif aux inconnus.

La clé du contrôle—voire de l'éradication—de la syphilis, c'est le traitement pendant l'époque qui précède le stage primaire, jusqu'ici réalisé uniquement par la "thérapeutique par hasard."

RESUMEN

Los altibajos de la curva de incidencia de la sífilis infecciosa en casos notificados en los Estados Unidos a partir de la segunda guerra mundial se caracterizan en las siguientes cifras: en 1947, más de 106,000 casos; en 1957, poco más de 6,000; de 1957 a 1961 esta última cifra se triplicó (aunque se calcula que la verdadera incidencia, por ejemplo en 1959, fue de unos 60,000 en comparación con los 8,200 casos de sífilis secundaria notificados.)

Este trabajo demuestra la importancia que tiene la "cura al azar," mediante el tratamiento con penicilina procaina en suspensión acuosa cuando ésta se administra en el tratamiento de otras enfermedades y cuando no se tiene un diagnóstico de sífilis, 1948–57.

Entre 1950 y 1960 la tendencia del tratamiento antibiótico ha sido la de evitar el uso de la penicilina y en su lugar administrar drogas de amplio espectro. A esto, añádase el hecho de que la población de los Estados Unidos ha aumentado un 19% durante este período.

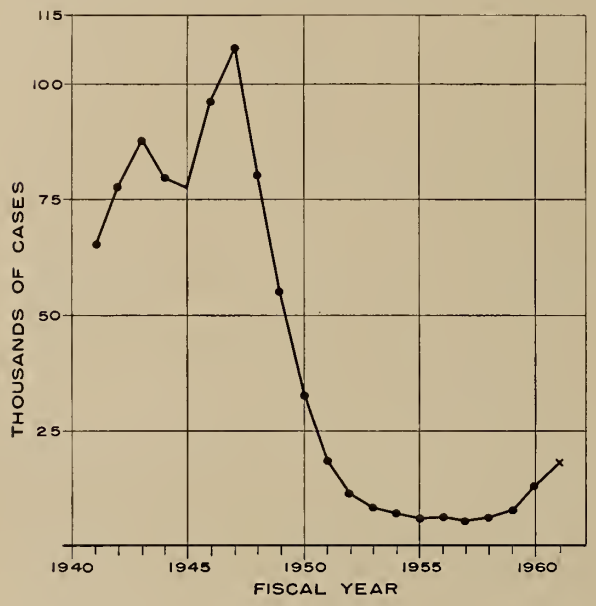
Todo lo dicho parece indicar que la terapia administrada con otros fines bien puede haber influido en la atenuación de los altibajos de la curva de incidencia. Los autores de este trabajo opinan que la causa principal de la disminución de la sífilis entre 1948 y 1955 ha sido el tratamiento intermitente de las masas con medicamentos espiroqueticidas.

En cuanto al panorama futuro—y puesto que se está utilizando menos la penicilina—a menos que se le haga

frente al problema desde un nuevo punto de vista, la reincidencia de la enfermedad parece inevitable. El problema no se resolverá intensificando y ampliando los programas actuales de control de las enfermedades venéreas debido a que el tratamiento acostumbrado llega solamente a dos grupos: (1) a casos diagnosticados los cuales, generalmente, ya han propagado la enfermedad, (2) a contactos conocidos, cuyo número es mucho menor que los no conocidos.

La clave del control—y, posiblemente de la erradicación de la sífilis—se encuentra en la applicación del tratamiento en una etapa en que la enfermedad aún no ha llegado a su estado primario; hasta ahora, esto sólo se logra mediante la terapia al azar.

THE CURVE of reported incidence of infectious syphilis in the United States (Figure 1) (*1*) is, in its general configuration reminiscent of a roller-coaster. Noteworthy are the high in 1947 of more than 106,000 cases; the 94% decline to a low, 10 years later, of scarcely more than 6,000; followed by the tripling of that number in the next four years.



SOURCE: USPHS VD FACT SHEETS

Figure 1. Infectious syphilis: Primary and secondary reported cases in United States

Incidence Decline, 1948–57

Much attention has been focused on the recent rise, and many explanations for it have been advanced. Comparatively little thought, however, has been given to the reasons behind the precipitous 1948–57 decline. If one could fully understand the basis for that decline, the cause of the subsequent rise might be clarified.

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In 1948 the aqueous suspension form of procaine penicillin became available. Soon it was being administered to millions, often for the most trivial ailments. With such wide usage, it is inevitable that many a syphilitic in the incubation period, or (unrecognized) in the primary or secondary stage, received penicillin *given for some other ailment* (*2*). That early syphilis can be aborted or cured by such treatment has been amply demonstrated (*3, 4*). In these syphilitics, curative treatment did not await diagnosis, duration of infectiousness was cut short to hours or days, transmission was reduced or eliminated, and consequently the number of new cases fell.

"Happenstance" Penicillin Therapy

This mechanism whereby early syphilis, unrecognized by both physician and patient, was *cured as a side effect* of treatment given for another disease, we shall call "happenstance penicillin therapy" (*2, 5, 15*).

Between 1950 and 1960 the trend in antibiotic therapy in the United States was away from penicillin and toward the broad spectrum drugs (Figure 2) (*6*). Production of the latter more than doubled from the first to the second half of the decade, while penicillin production changed but little (Table 1) (*6*). During the same period the recommended penicillin dosage for many diseases increased many fold (Figure 3) (*7*), while the dosage of the broad spectrum antibiotics tended to remain fixed, partly because of a dose-related tendency to unpleasant side effects, and partly because of the cost factor. In addition, the population of the United States increased by 19% from 1950 to 1960 (*8*). In the light of these several factors, it is clear that by 1960 an ever larger percentage of the population was failing to receive penicillin in a given period of time. Thus, the opportunity for chance cure of co-existent syphilis was waning, for the broad spectrum drugs are only weakly effective against syphilis in the dosages ordinarily employed for minor ills (*9*).

Table 1. Production of penicillin and broad spectrum antibiotics (medicinal grades only), United States, 1948–60

[Thousands of pounds]

Year	Penicillin	5 year totals		Broad spectrum drugs
1948	161			
1949	249			
1950	429			220
1951	625	3, 135	2, 338	307
1952	671			414
1953	753			441
1954	631			597
1955	455			579
1956	631	3, 267	4, 891	697
1957	694			869
1958	516			1, 314
1959	567			932
1960	859			1, 079

Source: Federal Tariff Commission.

The "Happenstance" Mechanism

Now let us examine the "happenstance" mechanism itself. To adequately understand its workings, four factors must be considered:

1. The duration of infectiousness of the average untreated case of early syphilis.

2. The average number of persons infected by the untreated case.

3. The ratio of reported to unreported cases (primary-secondary only).

4. The number of penicillin-treated non-syphilitic infections incurred by the average syphilitic each year.

Obviously, absolute values for each of these factors are not accurately determinable. Let us, nevertheless, assign to each a conservative value[1] (Table 2), and then trace the effect of happenstance penicillin therapy on 1,000 cases of infectious syphilis (Figure 4).

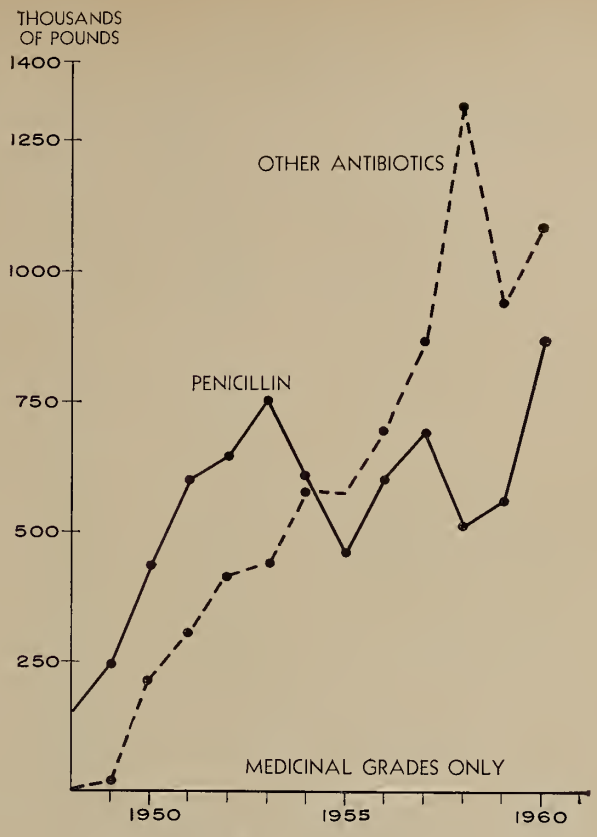
[1] That these values are conservative is demonstrated by the following:

Factor 1: Moore (*10*) states that infectiousness extends well into the second year.

Factor 2: The value "1" is an absolute minimum. Were it consistently smaller, syphilis could not have survived. The actual value may be closer to "4" (*11*).

Factor 3: Brown (*12*) estimates that in 1959 the true annual incidence was 60,000 cases. This is more than seven times the 8,200 primary-secondary cases reported that year.

Factor 4: In 1949 penicillin was the only widely used spirocheticidal antibiotic. Assuming that 80% of U.S. production for medicinal use was retained at home, calculation based on total production of 429,000 pounds, converting on the basis of 1 mgm. procaine penicillin being equivalent to 1,007 units, (*13*) it appears that about 600,000 units were available for every man, woman and child in the nation.



[1] The other antibiotics include all except Streptomycin, Dihydrostreptomycin, Bacitracin and Neomycin. These are excluded because their uses tend to be special, and ordinarily they are not substitutes for Penicillin.

Figure 2. Approximate annual production of penicillin and other antibiotics,[1] 1948 to 1960. (Source: Federal Tariff Commission)

Table 2. Stated conditions and assumptions for example No. 1

1. Untreated cases infectious	3 months.
2. Untreated case infects	1 other person.
3. Ratio reported to unreported cases	1:2.
4. Average frequency of non-syphilitic penicillin-treated ailment	1 per year.

The rectangle at the top of Figure 4 represents 1,000 untreated cases of infectious syphilis. According to the hypothesis, with one penicillin-treated non-syphilitic infection expected per year, and with the duration of infectiousness of the untreated syphilitic set at one-fourth of a year, there is one chance in four that the penicillin treatment will reach the syphilitic during the infectious period. Therefore, on average, 250 of the 1,000 (diamond on left) will be cured at some time during their incubation period or primary or secondary stage. Had the 250 remained untreated, each would have infected one other person; but since chance treatment reached them at times randomly distributed throughout the three month

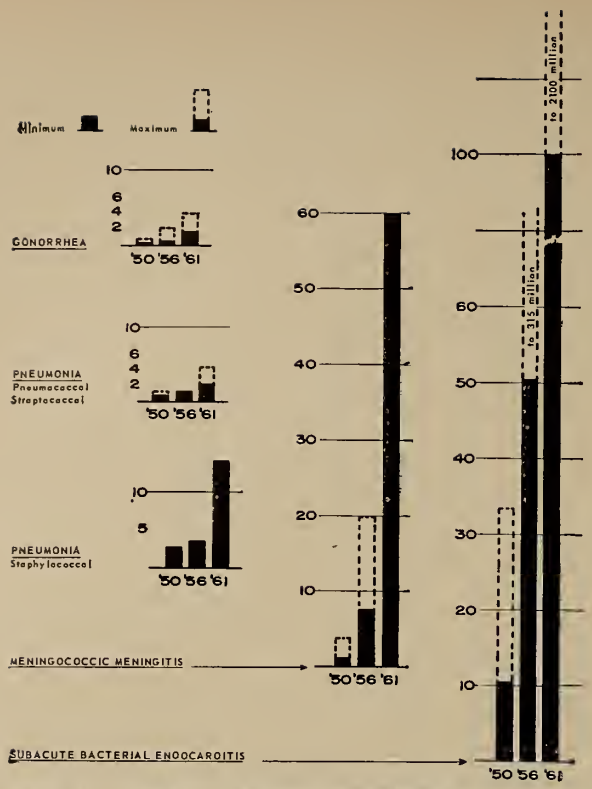


Figure 3. Dosage of penicillin recommended in the Merck Manual, 1950, 1956, and 1961 editions

period, only one-half of them, on average, will have infected one other person. These are the 125 represented by the circle on the left. They are in the second generation of the disease. Of these, one-third (42) are detected, reported and treated for syphilis, but two-thirds (83) escape detection. Of these, however, one-quarter (21) are cured by happenstance therapy, while 62 remain untreated.

In the upper right portion of Figure 4 are represented 750 syphilitics who failed to receive happenstance treatment. Of these, one-third (250) are diagnosed, reported and treated for syphilis, but not until, on average, one-half of them have infected 125 new cases. The fate of these is the same as the 125 on the left. In the rectangle on the right are represented 500 people who have escaped both happenstance treatment and treatment intentionally administered for syphilis. These have had three months in which to infect 500 others. Of these, 167 are cured by treatment for syphilis, 83 by happenstance treatment, while 250 escape untreated.

What would have happened to the 1,000 early syphilitics if penicillin were used only for the treatment of diagnosed syphilis, and if all other diseases were treated by means other than penicillin—in other words, if there were no happenstance penicillin therapy? Figure 5 shows that one-third of 1,000 (333 represented by the square on the left) would be diagnosed, treated and cured, but not until after one-half of them had seeded 167 new cases, of which 56 would be reported and cured, but 111 would escape. The 667 originally undetected would infect an equal number (circle on right), and, of these, 222 would be diagnosed, reported and cured, but 445 would escape (like the 111 on the left) to father a new generation of syphilis.

It may be seen in Table 3 that, under the conditions stated, happenstance penicillin therapy applied to just two generations of the disease, reduces the number of reported cases by 18%, but increases the number of syphilitics cured by

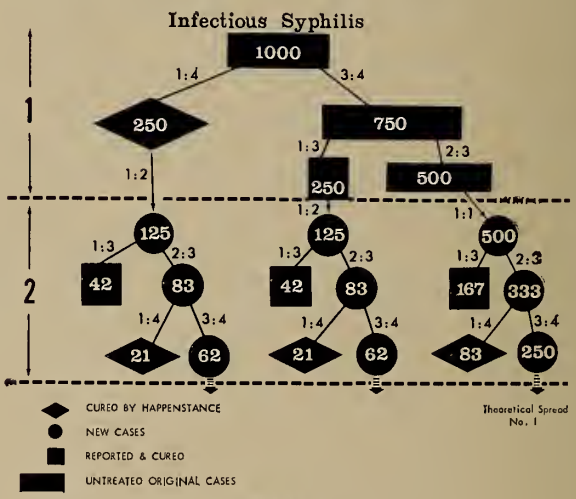


Figure 4

Table 3. Example 1: Results of 1,000 cases of infectious syphilis followed through the second generation

	Reported cases diagnosed and treated for syphilis	Unreported cases cured by happenstance	Total cures	Total untreated cases	Second generation untreated cases
With happenstance	501	375	876	874	374
Without happenstance	611	0	611	1, 223	556
Happenstance effect	−18%		+43%	−28%	−33%

43%. Moreover, the number of untreated cases remaining free to seed the next generation is reduced by one-third. Assuming several such generations each year, it seems clear that happenstance therapy may have had a large role in shaping the roller-coaster incidence curve.

The calculations above were based on very conservative values assigned to the four factors. Example 2 indicates the theoretical effect when more realistic values are substituted (Tables 4 and 5). Example 3 (Tables 6 and 7) utilizes the conservative values of Example 1 except that in Factor 4 it is postulated that a penicillin-treated non-syphilitic infection is incurred only once in five years. Even under this extreme assumption, reported cases are cut by 3.6%, and total cures are increased by 9%.

Table 4. Stated conditions and assumptions for example No. 2

1. Untreated case infectious for	4 months.
2. Untreated case infects	2 other persons.
3. Ratio reported to unreported cases	1:3.
4. Average frequency of non-syphilitic penicillin-treated ailment	every 8 months.

Validity of the Theory

The happenstance theory, unlike other explanations for the recent rise, is unique in that it embraces *all* four of the following characteristics:

1. Its scope is worldwide.[2]
2. It does not depend for its effect on wide swings and profound changes in morality and human behavior.
3. Its force is, in a general way, measurable.
4. The changing directions of that force correlate accurately with *both* the post-war decline and the recent resurgence of syphilis.

We believe, with Pillsbury (*5*), that the *principal* cause of the 1948–55 decline in the syphilis attack rate was the "intermittent treatment of

[2] In 71% of 106 nations reporting to the World Health Organization there has been a recent increase in the incidence of early syphilis (*14*).

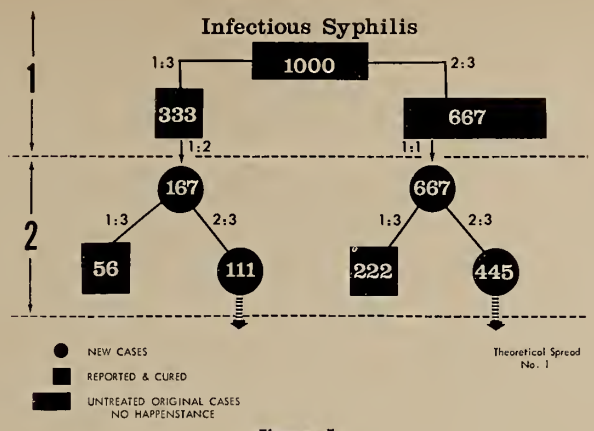


Figure 5

the entire population with spirocheticidal drugs." Given for a variety of reasons, their side effect was the suppression of syphilis. Over recent years, because of concern for penicillin's dangers and because of the development of resistance of certain microorganisms, physicians have been using penicillin ever less widely. It seems unlikely that this trend will be reversed. In that case, the benefits of happenstance penicillin therapy can no longer be counted upon to augment the public health effort. Unless the problem is attacked from a new angle, a continuation of the current upsurge of the disease seems likely.

Conclusion

Intensification and expansion of the present V.D. control program does not appear to supply the answer. Random chance was more effective than elaborate effort for one specific reason: Conventional treatment reaches only two types of syphilitic:

1. Diagnosed cases, usually after they have seeded their disease to others.
2. Known contacts, treated on epidemiologic grounds. These are outnumbered many times over by unknown contacts.

Significantly, random chance treatment is *not selective*. It reaches syphilitics in every stage

Table 5. Example 2: Results of 1,000 cases of infectious syphilis followed through the second generation

	Reported cases diagnosed and treated for syphilis	Unreported cases cured by happenstance	Total cures	Total untreated cases	Second generation untreated cases
With happenstance	469	1,015	1,484	891	516
Without happenstance	688	0	688	3,062	1,312
Happenstance effect	−32%		+115%	−71%	−60%

Table 6. Stated conditions and assumptions for example No. 3

1. Untreated case infectious for	3 months.
2. Untreated case infects	1 other person.
3. Ratio reported to unreported cases	1:2.
4. Average frequency of non-syphilitic penicillin-treated ailment	every 5 years.

of the disease, including those all-important persons in the pre-primary and *unrecognized* primary and secondary stages. It is this ever-changing, yet ever-present, small body of persons, a few thousand scattered throughout the many millions, faceless in the crowd, whose disease is unknown to themselves, their sex partners, their physicians and their health departments, who constitute in effect the real vectors of the great pox. The key to the control—and, possibly, the eradication—of syphilis is treatment in the pre-primary stage.

Up to now only chance treatment has reached these unidentified distributors of disease; but in the years when it did the syphilis attack rate fell to the lowest level on record.

The target seems clearly defined. It is now a matter of logistics. He who devises the practical means to bring treatment to these unperceived disseminators will have taken the long crucial step that could solve the syphilis problem forever.

Table 7. Example 3: Results of 1,000 cases of infectious syphilis followed through the second generation

	Reported cases diagnosed and treated for syphilis	Unreported cases cured by happenstance	Total cures	Total untreated cases	Second generation untreated cases
With happenstance	589	77	666	1, 151	518
Without happenstance	611	0	611	1, 223	556
Happenstance effect	−3. 6%	----------	+9%	−5. 8%	−7%

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A Plea—Put Syphilis Back in Differential Diagnosis

HARRY PARISER, M.D.

ABSTRACT

Syphilis is a disease in which diagnosis is greatly influenced by non-medical factors, mainly socio-economic judgments. It shows few symptoms except in the late stages. At the same time, there are usually signs, either typical or atypical, and of these some slides are shown. Especially does careful search for early syphilis lesions deserve attention. The secondary, and the oft-forgotten relapsing stage signs may be inconspicuous, as the slides illustrate.

Today, moreover, antibiotics may modify the appearance of syphilitic lesions.

We must not make socio-economic judgments, but take more tests.

SOMMAIRE

La syphilis est une maladie dont le diagnostic est le plus influencé par des facteurs non médicaux, en particulier par des jugements socio-économiques. Elle présente toutefois peu de symptômes, excepté aux stades avancés. En même temps, elle offre généralement des signes, typique ou atypiques, dont certains sont illustrés par nos projections. Les lésions syphilitiques à leurs débuts méritent tout spécialement l'attention. Les symptômes secondaires et ceux de récidive, qu'on oublie souvent, peuvent être peu évidents, ainsi qu'on le verra sur nos plaques.

En outre, à l'heure actuelle, les antibiotiques peuvent modifier l'apparence des lésions syphilitiques.

Il ne nous appartient pas de porter des jugements socio-économiques, mais seulement de procéder à un plus grand nombre de tests.

RESUMEN

La sífilis es una enfermedad cuya diagnosis depende más que en cualquier otra en factores que no son médicos, sino en mayor parte juicios de carácter socio-economico. Sin embargo la sífilis muestra pocos sintomas, excepto durante los periodos postreros. Al mismo tiempo existen comúnmente indicios atipicos como se ven en las películas; especialmente merecen estudio las lesiones de la sífilis en los primeros períodos de infección. Los indicios del período secundario y del período de reincidencia, este último muchas veces olvidado, pueden estar poco visibles, como se nota en las películas.

Además hoy en día pueden los antibióticos modificar el aspecto de las lesiones sifilíticas.

No debemos hacer juicios socio-economicos, sino más pruebas.

I KNOW OF no disease in which the diagnosis is influenced more by non-medical factors than that of syphilis. Given a group of signs and symptoms which might warrant consideration of this diagnosis, the physician is often influenced by the following:

1. The place: A person who has an eruption and who appears in the venereal disease clinic will undoubtedly be highly suspect, but with the same eruption the diagnosis may be missed in dermatologic or other clinics, and all too frequently may not even be considered in private practice.

2. The person: A tie, jacket and a generally well-groomed, clean-cut appearance influence against the diagnosis, as does an air of prosperity, evidence of education, and social or family prominence. Under these circumstances, the patient is often deprived of even an elementary investigation for syphilis.

3. His own attitude: No matter how rigorous one's training or objectivity, the physician's moral and sociologic outlook have much to do with his index of suspicion toward this disease, and his index of suspicion will often rise and fall, depending upon his non-medical subjective appraisal.

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Few Symptoms in Early Syphilis

One can aptly state that syphilis in all but the late stages is a disease of few symptoms. It is estimated that 40–60% of patients particularly the female pass through their primary and secondary stages unaware of or ignoring symptoms, since the early signs are usually painless, non-pruritic, often inconspicuous, only rarely accompanied by any significant systemic

reaction, and they disappear spontaneously. There follows a long, completely asymptomatic latent period which dulls the dim recollection (if any) of primary or secondary syphilitic manifestations.

However, syphilis is a disease of signs and the more careful the search, the fewer the "misses." I will not dwell on the "typical" cases. These are adequately described in the textbooks.

(*At this point the speaker showed 11 color slides of early syphilitic lesions which were either not noticed, misinterpreted, or ignored as of no significance by the patient.*)

Because these patients were named as contacts of early syphilis, a darkfield examination was performed on any lesion available, no matter how atypical it seemed. In some of these instances even experienced clinicians questioned the wisdom of this policy. One wonders how many of these cases would have been diagnosed as syphilis under less ideal circumstances.

Confusing Symptoms

All of us who have been in clinical syphilology for many years are quite aware of the fact that the signs and symptoms both of primary and secondary syphilis and of late syphilis vary so greatly and subtly that they often resemble the atypical manifestations of other conditions. The best one can do clinically is to make an educated guess as to the diagnosis of syphilis, sometimes with almost 100% assurance and at other times with considerably less certainty.

(*At this point the speaker showed 10 color slides of pairs of "look alikes," one syphilitic and one non-syphilitic.*)

Need for Differential Diagnosis

Given this clinical situation, my plea is to think of the *possibility*, for syphilis is a disease which, if we think of it, we can as a rule with appropriate laboratory tests confirm or reject the diagnosis. Any eruption which does not completely fit into a given etiologic frame deserves at least an accompanying serologic test for syphilis. This is particularly true today when so many antibiotics may modify the appearance of syphilitic lesions. We should roughly equate "atypicality" with the possibility of syphilis. If only the typical signs raise the suspicion of syphilis, a vast reservoir of this disease will go undiagnosed.

In conclusion, this is a plea—syphilis is "coming back" rapidly. Do not make a socio-economic diagnosis. Put it back in the differential diagnosis.

Clinical Use of Treponemal Tests in Diagnosis of Syphilis

GEORGE W. WARING, JR., M.D.

ABSTRACT

A current appraisal of the uses and limitations of certain of the treponemal serum tests for syphilis is attempted. The ideas expressed come from experience in a moderate size public venereal disease clinic. The patients have had detailed clinical evaluation in a uniform manner.

The treponemal antigen tests include an immobilization test and a complement fixing procedure which has had modifications of its antigen, now extracted from Reiter organisms. A few fluorescent antibody tests have been performed in our laboratory.

We have obtained TPI tests on a series of non-white patients. None had evidence of infection by history or physical examination and none had diseased consorts. The incidence of false positive reactivity was far less than the 50% observed in white private patients.

The chief utility of the immobilization test is as an exclusion procedure and the validity of its negative reactions is a crucial issue. It was found that an exclusion diagnosis based on a single negative TPI test involves a possibility of error.

The Reiter protein complement fixation test currently available to us is valueless as an exclusion procedure, and significant only when reactive.

A fluorescent tagged antibody test has been found to be promising.

The fallibility of the lipoidal tests has been somewhat overstated.

All the serologic tests have limitations and cannot be made the sole basis for reliable diagnosis.

SOMMAIRE

On tente d'évaluer l'étendue et les limites actuelles de l'emploi de tests sérologiques tréponémiques pour la syphilis. Les opinions exprimées résultent de l'expérience de l'auteur dans une clinique anti-vénérienne publique de moyenne grandeur. Les malades ont été l'objet d'une évaluation clinique uniforme dans tous ses détails.

Les réactions sur les antigènes tréponémiques comprennent un test d'immobilisation et une méthode de fixation du complément qui a subi des modifications de son antigène, extrait désormais des organismes de Reiter. Quelques tests d'anticorps fluorescents ont été effectués dans notre laboratoire.

Nous avons procédé à des tests TPI sur une série de malades de races de couleur. Aucun ne présentait de preuves d'infection, ni dans son histoire, ni à l'examen physique, et aucun n'avait de conjoint atteint. La fréquence de réactivité positive fausse était bien inférieure à celle de 50% observée dans la clientèle privée de race blanche.

Le test d'immobilisation est utile avant tout comme procédé d'exclusion. La validité de ses réactions négatives est un problème critique. On s'est aperçu qu'un diagnostic d'exclusion basé sur un seul test TPI négatif renfermait une possibilité d'erreur.

Le test de fixation du complément protéinique de Reiter dont nous disposons à l'heure actuelle est sans valeur comme méthode d'exclusion et n'a d'importance qu'au point de vue réactivité.

Un test d'anticorps fluorescents marqués semble promettre de bons résultats.

On a quelque peu exagéré la faillibilité des tests lipoïdiques.

Les tests sérologiques ont tous leurs limites et ne sauraient suffire à eux seuls comme bases de diagnostics sûrs.

RESUMEN

Se aventura una evaluación de actualidad de los usos y las limitaciones de ciertas pruebas con antígenos treponemales para la sífilis. Las ideas avanzadas se derivan de la experiencia de una clínica pública de tamaño mediano para medicinar las enfermedades venéreas. Los pacientes han recibido evaluación clínica detallada en una manera uniforme.

Las pruebas de antigeno de treponematosis incluyen una prueba de inmovilización y un procedimiento para fijar los complementos cuando haya habido modificaciones del antígeno que se extraiga de los organismos Reiter. Algunas pruebas de anticuerpo fluorescente han sido llevado a cabo en nuestro laboratorio.

Hemos hecho pruebas TPI con un grupo de pacientes de color. Ninguno demostró indicaciones de infección por historia ni por examinacion física y ninguno tuvo esposo o esposa contagiado. La incidencia de falsa reactividad positiva resultó mucho menos que la de 50% observada en pacientes blancos privados.

La utilidad principal de la prueba de inmovilización es para un procedimiento de exclusión, y la validez de sus reacciones negativas es el fin decisivo. Se determinó que una diagnosis de exclusión basada en una sola prueba TPI negativa encierra una posibilidad de error.

La prueba Reiter que nos queda disponible para fijar el complemento de proteina no tiene valor como un procedimiento de exclusión, y tiene significación solamente cuando esté reactiva.

Tiene promesa una prueba de anticuerpo marcado con fluorescencia.

Ha sido algo exagerada la falibilidad de las pruebas lipoidiquas.

Todas las pruebas serológicas tienen limitaciones, y ninguna por sí sola puede ser base de una diagnosis dignade confianza.

IT IS THE purpose of my remarks this afternoon to attempt a current appraisal of the uses and limitations of certain of the treponemal serum tests for syphilis. The ideas to be expressed come almost wholly from experience in a moderate size public venereal disease clinic. The material is numerically small, but the patients have had detailed clinical evaluation in a uniform manner and we believe that this kind of study is more meaningful than one based wholly on serologic testing.

The treponemal antigen tests have been provided for us by the Massachusetts Department of Public Health and include an immobilization test and a complement fixing procedure that has undergone successive modifications of its antigen which is now extracted from Reiter organisms. A small number of fluorescent antibody tests have been performed in our own laboratory.

TPI Tests

The early investigators of the immobilization procedure emphasized the frequency of falsely positive reactions to standard tests and in several reports negative TPI results were obtained in nearly half of the patients examined. In at least some of these studies the material was weighted with patients in whom syphilis was highly improbable on epidemiologic grounds. With this in mind, we have obtained TPI tests on a series of non-white patients, a group in whom syphilis has always been held to be epidemiologically highly prevalent. (Figure 1.) None of these persons had evidence of infection by history or on physical examination and none were directly known to have diseased consorts. In such patients, reactive tests were obtained in all but 8, which is 7% of 111 subjects. Thus in a group weighted with likely candidates for infection, the incidence of false positive reactivity is far less than the 50% observed in white private patients.

The chief utility of the immobilization test is of course as an exclusion procedure and hence the validity of its negative reactions is a crucial issue. We have therefore as far as possible re-

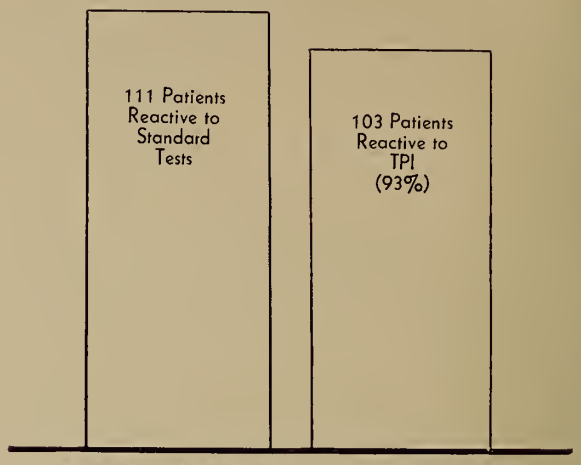

Figure 1. TPI testing of non-white clinic patients

tested, sometimes up to six times, all negative reactors. Figure 2 shows that among 50 patients who have yielded one or more non-reactive results, 13, or 26%, have been positive on subsequent tests. This is a minimum figure, since several patients have not yet been adequately retested. Plainly an exclusion diagnosis based on a single negative TPI test involves a possibility of error, which at least in our epidemiologic patient group is high.

TCF Procedures

Figure 3 shows our experience with treponemal complement fixation procedures. Of 125 patients persistently reactive to standard tests, 94 were TPI reactive and only 54 were comple-

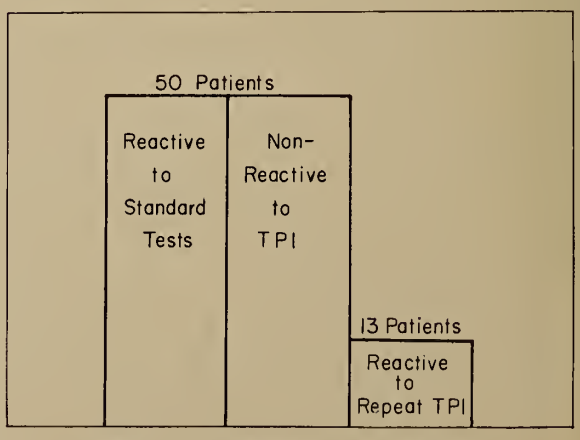

Figure 2. The retesting of TPI non-reactors

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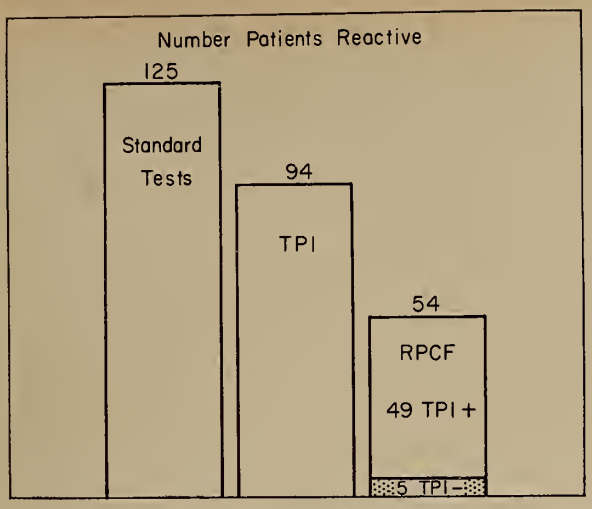

Figure 3. Comparative test results

ment fixing reactive. Only 5 of the 54 CF reactive patients were TPI negative. While several investigators have found CF procedures more useful than these data indicate, we are forced to conclude that the Reiter protein complement fixation test currently available to us is valueless as an exclusion procedure and is significant only when reactive.

FTA Test

A fluorescent tagged antibody test is currently being performed by a colleague in our own department. To date, no unusual technical difficulty has been encountered and results have shown excellent correlation with TPI results. We feel that this procedure is most promising.

Summary

Summarizing our thoughts on the serologic diagnosis of syphilis, we feel first that the fallibility of the lipoidal tests—or in other words the frequency of the BFP reaction—has been somewhat overstated. Early studies of the problem involved subjects who were unlikely candidates for syphilis, just as our own selected patients were excellent candidates. Neither approach yields results which are applicable in general. Moreover, our results with repeated TPI testing indicate that there are fairly numerous persons who are borderline TPI reactors but are unequivocally positive to standard tests. This implies that the lipoidal tests may be inherently more sensitive than the TPI. In any case, here is an area of potential diagnostic error and exaggeration of the limitations of the lipoidal tests.

Our disappointment with complement fixing procedures and our promising results with fluorescent antibody tests do not require further elaboration.

We recognize that lipoidal tests are of less than perfect specificity and our experience has been that treponemal tests are of less than perfect sensitivity. Thus all the presently available serologic tests have limitations. It should not be imagined that any can be made the sole basis for reliable diagnosis and it may well be that this will always be so. Proper account must be taken in each individual case of the clinical and epidemiologic facts, for without this orientation enlightened interpretation of serologic findings is impossible.

Laboratory Aspects of Treponemal Disease Diagnosis

AD HARRIS

ABSTRACT

Laboratory aspects of syphilis, yaws, and pinta diagnosis can be divided into three phases, i.e., darkfield examination, blood testing, and spinal fluid examination. Changes in laboratory methodology and trends in the use of these procedures in the United States will be discussed.

Darkfield examination has decreased recently. Since it is the most rapid, positive means of identifying early infectious syphilis, an effort is now being made to stimulate wider use of this procedure.

Although blood testing as an aid in detection of syphilis has been modified during past years, it is a widely available, relatively inexpensive procedure.

It has been reported that the better flocculation tests were as efficient as the better complement fixation tests for detecting syphilis. Some flocculation procedures have been adjusted to meet special requirements. The Plasmacrit (PCT) test of Dr. Andujar can be performed on plasma in a hematocrit tube, eliminating the need for a second blood specimen. The Rapid Plasma Reagin (RPR) test of Dr. Portnoy can be performed in a few minutes and a modification allowing testing of a few drops of blood without use of laboratory apparatus has been made.

The treponemal tests (TPI, FTA, and RPCF) are more expensive and are used as secondary or verification tests.

Experimental evidence indicates that treponemal tests can be performed on cerebrospinal fluid without modification.

In the nontreponemal tests there has been a shift to those composed of cardiolipin and lecithin, and to increased use of slide flocculation procedures.

SOMMAIRE

Le rôle du laboratoire dans le diagnostic de la syphilis, du pian et de la pinta peut se diviser en trois phases: l'examen à l'ultramicroscope, l'analyse du sang et celle du liquide cérébrospinal. Nous allons discuter des changements dans les méthodes de laboratoire et de l'orientation de l'emploi de ces procédés aux Etats-Unis.

L'examen à l'ultramicroscope a subi un déclin dans ces derniers temps. Comme c'est le moyen le plus rapide et le plus sûr de déceler la syphilis infecticuse à ses débuts, on fait un effort pour encourager l'emploi plus étendu de ce procédé.

L'analyse du sang, bien que sa part dans la découverte de la syphilis ait varié au cours des années, demeure un procédé facilement accessible et relativement peu coûteux.

On a dit que les bonnes réactions de floculation étaient aussi efficaces que les bonnes réactions de fixation du complément pour déceler la syphilis. Certains procédés de floculation ont été modifiés pour répondre à des besoins spéciaux. La réaction "Plasmacrite" du Dr. Andujar peut être effectuée sur le plasma dans un tube à hématocrite, ce qui élimine le besoin d'un second échantillon de sang. La réaction "Réagine Rapide du Plasma" du Dr. Portnoy peut être effectuée en quelques minutes: une modification permet désormais de l'effectuer sur quelques gouttes de sang sans employer d'appareils de laboratoire.

Les tests pour le tréponème (Immobilisation du Treponema pallidum, anticorps fluorescent du tréponème et fixation du complément protéine de Reiter) sont plus coûteux et sont employés comme tests secondaires ou de vérification.

Les résultats d'expériences montrent que les tests pour le tréponème peuvent être effectués sans modifications sur le liquide cérébrospinal.

Dans les tests non tréponémaux, il y a eu un changement d'orientation vers ceux basés sur la cardiolipine et la lécithine et sur l'emploi plus fréquent de méthodes de floculation sur plaques.

RESUMEN

Los aspectos de laboratorio en el diagnóstico de la sífilis frambiosia y pinta pueden ser divididos en tres fases, v.g. el examen en campo oscuro, los análisis de sangre, y el examen del fluido espinal. Se discutirán los cambios en la metodologia y direcciones en el uso de estos procedimientos en los E. U.

El examen en campo oscuro ha disminuido recientemente. Puesto que es el medio mas rapido y positivo para identificar las infecciones de sífilis incipientes; un esfuerzo se está realizando para estimular el uso más amplio de este procedimiento.

A pesar que el análisis de sangre como un medio auxiliar para descubrir la sífilis ha sido modificado durante estos últimos años, es un procedimiento ampliamente accesible y relativamente económico.

Se ha informado que las mejores pruebas de floculación fueron tan eficientes como las mejores pruebas de fijación complementarias para descubrir la sífilis. Algunos de los procedimientos de floculación han sido adaptados para convenir con algunas exigencias especiales. La Prueba de Plasmacrito (PCT) del Dr. Andujar puede ser realizada en plasma en un tubo hematocrito, eliminando la necesidad de una segunda prueba de sangre. La Prueba de Reagente de Plasma Rapido (RPR) del Dr. Portnoy puede ser realizada en pocos minutos y se ha hecho una modificación per-

miticndo el análisis de unas pocas gotas de sangre sin el uso del aparato de laboratorio.

Las pruebas treponemales (TPI, FTA, RPCF) son más caras y se utilizan como pruebas sccundarias o de comprobación.

La evidencia experimental indican que las pruebas treponcmales pucden ser realizadas en el fluido ccrebroespinal sin modificación alguna.

En las pruebas no treponemales ha habido un cambio á aquellas que se componen de cardiolipen y lecitin y al uso creciente de los procedimientos de porta placas de floculación.

LABORATORY ASPECTS of syphilis, yaws and pinta diagnosis can be divided into three phases; namely, darkfield examination, blood testing, and spinal fluid examination. Utilization of these laboratory aids in diagnosis vary between countries, and even from place to place in this country where the need is associated principally with syphilis control. Changes that have evolved in laboratory methodology and trends in the use of these procedures in the United States will be briefly reviewed and discussed.

Darkfield Examination

Darkfield examination of lesions has decreased in this country in the recent past in hospitals, other general practice areas, and even in venereal disease treatment centers. This has probably been caused by several factors, including (a) fewer requests by the examining physician as a result of diminished level of suspicion regarding syphilis infection, (b) lack of properly equipped microscopes, and (c) the frequent absence of qualified microscopists. Since the darkfield examination is the most rapid, positive means of identifying early infectious syphilis, it is an important test in the syphilis control program, and an effort is now being made to stimulate wider availability and use of this procedure.

Several hundred field workers of the national venereal disease control program have been trained in the use of the darkfield microscope during the past two years, and this type of training is being continued this year. Workshops on the performance of darkfield examinations held in a few states have been attended by technicians from private and hospital laboratories and by state laboratory personnel. It is hoped that interest in this area of training will be evidenced in other states and that a greater number of these workshops will be held. Microscopes equipped for darkfield examination have been provided for state venereal disease control teams through whom this service is made available to physicians in private practice on request. Public Health Service physicians have received refresher training in the performance of darkfield examinations and, through them, information in this regard has been disseminated to local physician groups and medical schools. Training aids that have been prepared or made available for field workshops or school classes include a booklet *Darkfield Microscopy for Detection and Identification of Treponema Pallidum* distributed by Venereal Disease Branch, CDC, and a black and white film titled *Laboratory Technique for Darkfield Microscopy*. Motile treponeme suspensions are also supplied to training workshops conducted by state laboratories on request.

These efforts have each been stimulating in the localities where they have been applied, and the overall effort, although not statistically evaluated at this time, has been to increase the number of darkfield positive lesions detected and reported.

Blood Testing

Blood testing as a laboratory aid in detection of syphilis infection in this country has been modified in scope and character during past years. Mass blood testing, as had been used in intensive local syphilis control efforts, has been discontinued except for selected groups such as itinerant farm laborers that move in large numbers across state lines, and for field workers that seasonally come in large numbers from Mexico. In some localities laws regulate blood testing of food handlers, cosmeticians, barbers, etc., and some larger industries have adopted routine blood testing regulations for hiring. Blood tests for syphilis were a routine admission requirement for some hospitals that have now limited this testing to physicians' requests only. Restrictive regulations that have been placed on blood testing for syphilis have usually been supported by the arguments that first, the low number of positive findings do not justify the total testing expense; secondly, laboratory personnel and space can better be utilized in other more needed testing; or thirdly, that the incidence of syphilis is so low in this area, hospital or place that this type of testing should have a low priority.

It is true that prevalence and incidence figures for syphilis for some parts of the United

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States are much lower than in others. It is also true that the economics of hospital or laboratory management may sometimes influence the routine of laboratory testing. However, ascending syphilis indices for this country also indicate a need for continuing use of all available means for detecting this disease, and blood testing is a widely available, relatively inexpensive procedure for this purpose.

Flocculation Tests

Blood tests for syphilis, or Wassermann tests, were first complement-fixation procedures that were costly to perform and that were done only in specialized laboratories. The International Serology Congress of 1941 and the Serology Evaluation and Research Assembly (SERA) Study, 1956–57 conducted by the Public Health Service, both reported that the better flocculation tests were as efficient as the better complement-fixation tests for detecting syphilis. Since flocculation tests can be performed with less laboratory space, technician time and reagent expense, this type of testing has found general acceptance as a primary or routine test for syphilis. In the last few years some of these flocculation procedures have been adjusted to meet special requirements such as the Plasmacrit (PCT) test of Dr. Andujar that can be performed on the plasma in a hematocrit tube after the cell volume has been determined, thereby eliminating the need for a second blood specimen obtained by venipuncture. The Rapid Plasma Reagin (RPR) test of Dr. Portnoy can be performed in a few minutes on plasma obtained by venipuncture when rapid testing and reporting are important. A recent modification of this latter test has been developed, allowing the testing of a few drops of blood obtained by finger puncture without the use of laboratory apparatus, so this test, named the RPR Card test, may find use in the field or other non-laboratory areas. These procedures, plus other slide and tube flocculation tests now available, allow testing for syphilis to be performed at reduced expense under the circumstances best suited to the needs of an institution, locality, or health department.

Treponemal Tests

The treponemal tests, including Treponema Pallidum Immobilization (TPI), Fluorescent Treponemal Antibody (FTA), and Reiter Protein Complement Fixation (RPCF), are more expensive procedures and are being used as secondary or verification tests. The TPI test is offered as a service by Venereal Disease Research Laboratory to all state laboratories that can make it available to the physicians in their jurisdictions on selective bases. Approximately 6000 TPI tests per year are being performed in this service arrangement. This test is also being performed by three state laboratories and one commercial laboratory in this country. The TPI test, although considered by many to be the ultimate serological authority in resolving problem-diagnoses of syphilis, is used with circumspection since it is the most costly of the tests for syphilis. The FTA test of Dr. W. E. Deacon, also employing the virulent *Treponema pallidum*, has been used experimentally by several state laboratories and laboratories in other countries. This test is now being routinely used in some laboratories as a secondary test. The increase in fluorescent antibody testing in other phases of laboratory work has made microscopes, equipment, and trained technicians needed for the performance of the FTA test more widely available. Complement-fixation tests using Reiter protein antigen have been used during the past several years as verification tests by many private and hospital laboratories and some of the state laboratories. Antigen for this test has been commercially available for several years, but some laboratories have reported difficulty in maintaining satisfactory sources of this reagent.

Spinal Fluid Examination

The number of spinal fluids submitted for tests for syphilis is decreasing in this country, and this may be a reflection of differences in patient management and followup since the advent of penicillin therapy. Whereas complement-fixation was the only procedure originally adapted for testing cerebrospinal fluids, flocculation procedures, including slide tests requiring minimal quantities of fluid, are now widely used for this purpose. Since spinal fluid findings probably have more prognostic than diagnostic significance, there has been little attention directed to the use of treponemal tests in this regard. Experimental evidence indicates, however, that the treponemal tests can be performed on cerebrospinal fluid without modification.

Serologic Evaluation Studies

With the exception of the TPI test and those tests employing plasma only, tests presently being used may be identified as those entered in serologic evaluation studies conducted by the

several states and the Venereal Disease Research Laboratory. Approximately 40 of the states conduct serologic evaluation studies on a yearly or intermittent plan. The yearly study by the Venereal Disease Research Laboratory is designed primarily for the state laboratories, and the number and kinds of tests they enter is one index of the trend of adoption, use, and discontinuance of the different procedures. This study, in addition to the state department of health laboratories of the 50 states, has included New York City, the District of Columbia, Puerto Rico, Virgin Islands, Canada, Denmark, El Salvador, Mexico, Taiwan, British Guiana, Venezuela, Uruguay, and others. Tests entered by the laboratories in other countries have been the same as those entered by the state laboratories.

Trends in Use of Tests

In the nontreponemal tests the most noticeable shifts during the last ten years have been away from the older crude-extract antigens to those composed of cardiolipin and lecithin, and to increased use of flocculation tests, particularly the slide flocculation procedures requiring only small quantity blood samples for testing. More recently, many laboratories are now using flocculation procedures for testing unheated serum or plasma. In treponemal tests the Kolmer test with Reiter protein antigen has been most widely used, and approximately one-fourth of the state laboratories have employed the FTA test as a confirmation procedure. These changes in the use of particular kinds of tests seems to have been dictated by a desire to meet the objective of testing more rapidly and more cheaply but with adequate confirmation.

Complement-fixation tests employ several reagents all of which need to be titered or controlled, so these tests are relatively expensive procedures. Most complement-fixation tests take from a few hours to more than one day for completion, so are relatively slow laboratory procedures. Flocculation tests require fewer reagents, less laboratory space and equipment, and fewer technician-hours, so are less expensive tests on a unit basis. The slide-flocculation type of test is not only rapidly performed but also requires only small quantities of testing fluid. Slide flocculation tests are even more rapidly performed when unheated serum or plasma are tested since the preliminary heating or activation period is eliminated. An additional time-saving factor is incorporated into the RPR Card test since, with this procedure, it is not necessary to bring the patient or his blood sample to the laboratory, and the test result can be obtained in less than ten minutes.

These more rapid testing procedures have been classed as "screening" tests in some areas and are used to select those patients that show some degree of activity so that another blood sample can be taken by venipuncture and forwarded to the laboratory for additional testing. This tactic appreciably reduces the testing load in the central laboratory. In other places the "screening" procedure result is reported directly to the physician and additional serological testing is performed only on his request.

One kind or type of serologic test for syphilis may be preferred over others for specific patient groups. At times, when it is necessary for the physician to make a rapid diagnosis, a test that can be performed while the patient awaits, has application. This situation arises when a large number of workers are being rapidly processed through immigrant stations and cannot be easily located several days later, where a physician is visiting in remote areas and will not soon return, and in any instance where the physician-patient contact may be lost. Under these conditions, the Rapid Plasma or RPR tests would have good application. In hospitals where venipuncture blood is not routinely drawn on admission or in blood banks, the Plasmacrit or PCT test allows the performance of a rapid test for syphilis without drawing blood specifically for this purpose.

Flocculation tests performed either in tubes or on slides are usually preferred for testing blood samples that are sent to a central laboratory. Some few central laboratories have continued to use a complement-fixation test for primary testing, and other laboratories include a nontreponemal complement-fixation test for retesting serum found to be reactive in the primary flocculation test. A "battery" of three or more nontreponemal tests for syphilis is performed by several of the central laboratories on serum found to be reactive in the primary test or on specific request from physicians. The use of a group or "battery" of nontreponemal serological tests for syphilis has been in vogue in some areas as an attempt to differentiate biological false positive from syphilis reactions. Since treponemal tests for syphilis have become more widely available, use of "battery" testing has diminished. Repeat testing of reactive serums using the same procedure is, however, being retained as an effective means of avoiding laboratory errors associated with specimen handling.

Maintaining High Quality in Serological Tests

The quality of a serological test for syphilis report is a reflection of the laboratory from which it is issued or more specifically the competence of the laboratorian performing the test. A current laboratory procedure may be a method that has been passed down through a series of laboratorian replacements by word-of-mouth. Under these circumstances, the method usually picks up many modifications on its journey to the present. Whatever the qualifications a particular procedure may have had originally, they can be nullified by these personal twists or modifications. It is therefore necessary that a presently acceptable written technique be adhered to if quality performance is to be expected. Reagents of good quality should be available and adequate controls should be used to insure validity of test reports. Laboratorians should be trained in the specific techniques they are using and as newer techniques are adopted some retraining is indicated. All these points are recognized by the major testing laboratories of this country. The training, reagents control and evaluation services of the Public Health Service are utilized by the state health department laboratories, and most of the state laboratories offer all or part of these services to the many laboratories in their jurisdiction. Some state laws require certification of laboratories or laboratorians for the performance of serologic tests for syphilis in prenatal, premarital, and some other types of examinations. Those laws may also provide authority for specifying the exact test or tests that will be acceptable for these purposes. To change any part of this process, including the acceptance of a new test, may require a change in the law, but in many states this prerogative is invested in a council or a committee. Even when no legal requirement must be met, it can be difficult to have a newer testing procedure accepted by the physicians unless the state laboratory director wisely presents enough data to them beforehand to support the change.

The U.S.A. presents a broad view of the laboratory aspects of serologic tests for syphilis, since it has within its borders several thousand laboratories engaged in this practice under the guidance or control of more than 50 regional or state laboratories. These laboratories are not equally distributed geographically. Some states have only a few laboratories other than those of the public health service of municipalities, counties, and the state. Examples of the other extreme are the states of California and Texas, each containing more than 1,000 laboratories that perform serologic tests for syphilis. The need and quantity demand for serologic tests for syphilis varies between urban centers and rural communities and between states having different syphilis indices. All of these factors militate against the rapid adoption of new testing procedures on a broad scale.

It is apparent, however, that there have been many changes in serologic tests for syphilis in this country and that there are more to come. Laboratories in other parts of the world may be dissimilar in regards to equipment, available trained manpower, and priority needs for tests for syphilis and other treponematoses, but some of the techniques developed in this country will probably find application in other areas, as they have in the past. It is only through the efforts of other national laboratories and the World Health Organization that evaluation of these newer techniques in laboratories of other areas, amongst other segments of the world population, and for detection of the several treponematoses, can be adequately accomplished.

Panel: Development of Serologic Standards

PART I. Development of Serologic Standards

GENEVIEVE W. STOUT, *Moderator*

ABSTRACT

The Venereal Disease Research Laboratory of the United States Public Health Service has been responsible for developing standards for syphilis serology and for implementing their adoption and use. These efforts include the following: Developing methods for standardizing reagents used in syphilis serology and for preparing and maintaining reference standard antigens and other reagents; Preparing, standardizing and making available to state public health laboratories control serums for the serologic tests for syphilis in current manuals; Conducting evaluation studies of serologic tests for syphilis to determine their relative sensitivity and specificity; Publication of current techniques for the most widely used American methods shown to have acceptable sensitivity and specificity; Conducting evaluation studies to determine the proficiency of laboratories in performing tests for syphilis.

Many state laboratories have intrastate standardization programs and offer to approved laboratories within their jurisdiction services similar to those available from the VDRL.

Laboratorians in state public health laboratories are trained to perform tests in exact accordance with prescribed techniques, using standardized reagents and adequate controls.

Consultants from the VDRL visit state health department laboratories on request to review performance of serologic tests for syphilis; to offer on-the-job training when indicated; to review approval programs for laboratories in the state performing serologic tests for syphilis required by law; and to assist with field refresher training courses.

SOMMAIRE

Le Laboratoire de Recherche des Maladies Vénériennes du Service de la Santé Publique des Etats-Unis s'est vu confier la responsabilité de mettre au point des titres pour la sérologie de la syphilis et de mettre en oeuvre leur adoption et leur usage. Ces efforts concernent: développement des méthodes de titrage des réactifs utilisés dans la sérologie de la syphilis et de préparation du titre des anti-gènes ou autres réactifs ainsi que la conservation de la référence de ces titres; préparation, titrage et mise à la disposition des Laboratoires de la Santé Publique de l'Etat de sérums de contrôle destinés aux tests sérologiques de la syphilis dans les manipulations courantes; conduite d'études en vue de déterminer la valeur relative en sensibilité et en spécificité des tests sérologiques de la syphilis; publication d'une technique courante pour les méthodes américaines les plus employées et ayant fait la preuve d'une sensibilité et d'une spécificité acceptables; conduite d'études évaluatives en vue de déterminer la compétence des laboratoires dans l'accomplissement des tests sur la syphilis.

De nombreux laboratoires d'Etat ont leurs propres programmes de titrage et offrent des laboratoires agréés à l'intérieur de leurs services judiciaires, semblables à ceux dont dispose le Laboratoire de Recherche des Maladies Vénériennes (LRMV).

Les laborantins dans les laboratoires des services de la Santé Publique sont entraînés à faire des tests rigoureusement conformes aux moyens techniques prescrits, en utilisant des réactifs titrés et des contrôles adéquats.

Les médecins-consultants du LMRV, sur demande, visitent les laboratoires du Département de la Santé Publique afin d'y contrôler les tests sérologiques de la syphilis accomplis par ces laboratoires; d'offrir une instruction dans l'emploi tenu, lorsque cela semble indiqué; de réviser les programmes approuvés concernant les laboratoires qui exécutent pour l'Etat les tests sérologiques de la syphilis exigés par la loi et d'apporter leur assistance par des cours de perfectionnement dans cette matière.

RESUMEN

El Laboratorio de Investigaciones de Enfermedades Venereas del Departamento de Sanidad Pública de los Estados Unidos ha sido responsable por las mejoras realizadas en las normas serológicas de la sífilis y por ser el agente que implementa su adopción y uso. Estos esfuerzos incluyen lo siguiente: El desarrollo de los métodos de manera de haeer uniforme los reagentes usados en la serológia de la sífilis y de preparar y mantener normas antigenas de referencia y otros reagentes. Preparar, haeer uniforme y disponible sueros control a los laboratorios de salud pública para las pruebas serológicos de sífilis que se usan en la actualidad. Conducir estudios de evaluación de pruebas serológicas para la sífilis de manera de determinar su relativa sensibilidad y especificidad. La publicación de técnicas actuales de los métodos americanos más corrientemente usados que han demostrado tener la sensibilidad y especificidad más aceptable. Conducir los estudios de evaluación para determinar los adelantos de los laboratorios al realizar las pruebas de la sífilis.

Muchos laboratorios del Estado tienen programas uniformes entre varios estados y ofrecen servicio a los laboratorios aprobados dentro de su juridicción similares a los disponibles del VDRL.

Los técnicos en los laboratorios de salud pública del Estado estan entrenados para realizar pruebas

en completo acuerdo con las técnicas prescritas usando reagentes uniformes y controles adecuados.

Los consultantes del VDRL visitan a los laboratorios del Departamento de Salud del Estado que soliciten la revision de las pruebas serológicas de la sifilis realizadas. Ofrecer entrenamiento al personal de los laboratorios cuando sea necesario; revisar los programas para los laboratorios aprobados por el Estado para realizar pruebas serológicas de la sifilis como lo dispone la ley; y para ayudar con los cursillos de entrenamiento para refrescar los conocimientos.

THE IMPORTANCE of blood tests as a tool for detecting syphilis and in determining the effectiveness of treatment is unquestionable. If test results are not predictably reliable, however, control efforts are greatly hampered, since some cases of syphilis may not be brought to treatment and other patients may be incorrectly diagnosed.

In the United States, the Venereal Disease Research Laboratory of the United States Public Health Service has been responsible for developing standards for syphilis serology and for implementing their adoption and use. These efforts include:

1. Reagents Standards:
   a. Developing methods for standardizing reagents used in syphilis serology and for preparing and maintaining reference standard antigens and other reagents.
   b. Preparing, standardizing, and making available to state public health laboratories control serums for the serologic tests for syphilis included in current manuals.
2. Technique Standards:
   a. Conducting evaluation studies of serologic tests for syphilis to determine their relative sensitivity and specificity. The latest of these evaluation studies of both nontreponemal and treponemal tests, conducted in 1956–57, was the *Serology Evaluation and Research Assembly (SERA) Study.*
   b. Periodic publication of *Manuals of Serologic Tests for Syphilis* containing current techniques for the most widely used American methods shown to have acceptable sensitivity and specificity.
3. Performance Standards:
   a. Conducting evaluation studies to determine the proficiency of laboratories in performing tests for syphilis.

Reference reagents are available, on request, to manufacturers and state laboratories for check-testing. Packaged commercial products may be submitted to the Venereal Disease Research Laboratory for comparative testing to determine that these products have an acceptable reactivity level. Most of the major biological houses take advantage of this voluntary service even though there is no legal requirement to do so.

A list of reagents found to reproduce the reactivity of reference standard reagents and control serums associated with the sale of some of these products is distributed quarterly to participating manufacturers and, in accordance with their request, to state health department laboratories.

Dehydrated control serums with established reactivity patterns for the tests for syphilis using cardiolipin and Reiter protein antigens, included in the current *Manuals of Serologic Tests for Syphilis*, are available to state public health laboratories for use as reference controls for the tests employed and in establishing patterns for whole serum controls prepared by the laboratory. Control serums for Treponema Pallidum Immobilization (TPI) tests are furnished to laboratories performing these tests in the United States. Control serums are also available for the Fluorescent Treponemal Antibody (FTA) test.

Annual evaluation studies designed to determine the proficiency of state laboratories in performing tests for syphilis are conducted by the Venereal Disease Research Laboratory. Two hundred serum samples are distributed during a 10-month period to each of the participating laboratories. The results obtained by the Venereal Disease Research Laboratory are distributed to the participants each month, and an annual report comparing their test results with those of the control laboratory is issued during the last part of the fiscal year. Criteria for acceptable performance in terms of reproducibility of test results on paired specimens and agreement with a control performance have been established.

Many state laboratories have intrastate standardization programs and offer approved laboratories within their jurisdiction services

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similar to those available from the Venereal Disease Research Laboratory. This has resulted in high standards for test performance of serologic tests for syphilis in a majority of the hospital and private laboratories in the United States. Continuous evaluation studies are conducted by approximately two-thirds of the state laboratories to insure that a satisfactory level of test performance is maintained.

Laboratorians in state public health laboratories are trained to perform tests in exact accordance with prescribed techniques using standardized reagents and adequate controls. Refresher training courses in *Current Methods for Syphilis Serology* are conducted at the Venereal Disease Research Laboratory, and some on-the-job training is accomplished during consultative visits to state laboratories.

Consultants from the Venereal Disease Research Laboratory visit state health department laboratories on request (1) to review performance of the serologic tests for syphilis carried out in the laboratories; (2) to offer on-the-job training when indicated; (3) to review approval programs for laboratories in the state performing serologic tests for syphilis required by law; and (4) to assist with field refresher training courses.

As a WHO Serological Reference Center, many of the services of the Venereal Disease Research Laboratory are available to public health laboratories in this hemisphere and throughout the world. Workers from central laboratories of other countries frequently attend the scheduled courses. During fiscal year 1962, 13 countries participated in the syphilis serology evaluation study and 24 countries obtained reference reagents. An evaluation of test performance of laboratories performing the FTA test in five countries was recently completed. Standardization programs similar to the one developed by the Venereal Disease Research Laboratory for the United States have been adopted in other geographic areas and in individual countries. These programs must be continuous, since new and improved test procedures are constantly being developed and the patterns in syphilis serology change.

It is hoped that the knowledge gained in the United States will be of value in establishing serologic standards on a regional, hemispheric, or world basis.

PART II. Development of Serologic Standards

HANS AAGE NIELSEN, M.D.

ABSTRACT

The standardized method for preparation of cardiolipin and lecithin, the possibility for direct chemical examinations of the highly purified products and their stability, enable the laboratories to establish an international reference preparation of cardiolipin and lecithin.

A possibility for deviation in "standard" serological reactivity exists; a comparison to the international reference preparation is desirable, if serological sensitivity and specificity shall remain constant. The result of the establishment of an international preparation of cardiolipin and lecithin was the elaboration of a standard of human syphilitic serum. This standard serum should be a serum pool to eliminate the variation in reactivity of the individual sera and should be sera from late symptomatic and latent cases of syphilis. Thus laboratories in all countries may establish a national standard by comparison to the international standard.

It was agreed that 2.384 mg of the German standard was equal in reactivity to 3.617 mg of the international standard, which was defined as one unit. Thus, the most common expression for the amount of antibody in a serum, the titer, could be replaced by units.

To establish international standards for treponemal antigens the antigens must be reproduced in different laboratories.

For research work it would be an advantage if each new antigen were checked against a collection of standard and multivalent sera.

SOMMAIRE

Grâce à la méthode normalisée de préparation de cardiolipine et de lécithine, à la possibilité de procéder à l'examen chimique direct de produits d'un haut degré de purification et à la stabilité de ces produits, les laboratoires sont à même d'effectuer une préparation de cardiolipine et de lécithine de référence internationale.

Il existe une possibilité de déviation de la réactivité sérologique "étalon"; une comparaison avec la préparation de référence internationale est souhaitable afin d'assurer un degré constant de sensibilité et de spécificité sérologiques. L'établissement d'une préparation internationale de cardiolipine et de lécithine a eu pour résultat celui d'un étalon de sérum syphilitique humain. Ce sérum étalon devrait être un sérum composite afin d'éliminer les variations de réactivité entre sérums individuels, et il devrait être formé de sérums provenant de cas latents ou ayant récemment donné des symptômes de syphilis. Les laboratoires de chaque pays peuvent ainsi établir un étalon national en le comparant à l'étalon international.

On a convenu que 2,384 mg de l'étalon allemand avaient une réactivité égale à celle de 3,617 mg de l'étalon international, qu'on a défini comme l'unité. L'expression la plus courante de la quantité d'anticorps dans un sérum, le titre, a pu ainsi être remplacée par des unités.

L'établissement d'étalons internationaux pour les antigènes tréponémiques exige la reproduction d'antigènes dans divers laboratoires.

Dans l'intérêt des recherches, il serait souhaitable de comparer tout nouvel antigène à une collection de sérums étalons et polyvalents.

RESUMEN

En los métodos controlados para la preparación del cardiolipin y lecitin, a la posibilidad de exámenes químicos directo de los productos altamente purificados y sus estabilidades, facilita a los laboratorios á establecer una preparación internacional de referencia del cardiolipin y lecitin.

Existe una posibilidad para la desviación en las normas de reactividad serológicas, una comparación á la preparación de referencia internacional es deseable, si la sensibilidad y la especificidad serológica se mantiene constante. El resultado del establecimiento de una preparación internacional de cardiolipin y lecitin fué la elaboración de una norma del suero humano sifilítico. Esta norma del suero debe ser un control de comparación con los diferentes sueros para eliminar la variación en la reactividad de un suero individual y debe ser un suero de casos de sintomas recientes y latentes de sífilis. De esa forma los laboratorios en todos los paises pueden establecer una norma nacional por comparación á la norma internacional.

Se acordó que 2.384 mg. de la norma alemana era igual en reactividad al 3.617 mg. de la norma internacional, que fué definida como una unidad. De esa forma, la expresión mas corriente para la cantidad de los anticuerpos en un suero, la cifra total, puede ser reemplazada por unidades.

Para establecer normas internacionales para antigenos treponemales, los antigenos deben ser reproducidos en distintos laboratórios.

Para el trabajo de investigación sería una ventaja si cada antigeno nuevo fuera confrontado contra una colección de normas y suero multivalente.

BEFORE THE PURE cardiolipin and lecithin were available, it was very difficult to prepare a useful international standard of antigen for lipid serology.

The standardized method for preparation of cardiolipin and lecithin, the possibility for direct chemical examinations of the finally obtained, highly purified products and their stability, enable the laboratories to establish an international reference preparation of cardiolipin and lecithin.

Even if newly prepared cardiolipin and lecithin respect the stipulated chemical limits, a possibility for deviation in "standard" serological reactivity exists, and therefore a comparison to the international reference preparation is highly desirable, if the serological sensitivity and specificity shall remain constant.

As soon as an international preparation of cardiolipin and lecithin was established, the logical consequence was the elaboration of a standard of human syphilitic serum also. This standard serum should be a serum-pool in order to eliminate the variation in reactivity of the individual sera, and should consist of sera from late symptomatic and latent cases of syphilis. This is done in order to enable laboratories in all countries to establish a national standard by comparison to the international standard. At the time the international standard was established, cases of fresh syphilis were infrequently seen, and if such cases were included in the standard serum-pool, it would be difficult in some countries to obtain a national standard.

Since the German standard was already established, the international was compared to the German standard, and it was agreed, that 2.384 mg of the German standard was equal in reactivity to 3.617 mg of the international standard, which was defined as *one unit.*

The international standard contains antibodies able to react in the most common serological methods in use, including the treponemal tests. Therefore, it is possible in all countries to use the international standard for the preparation of a national working standard for several tests.

If this idea were followed, the most common expression for the amount of antibody in a serum, namely the titer, could be replaced by units, which would make the comparison of results between publications easier.

In the very near future, it will be necessary to establish new standards of treponemal antigens, and perhaps the establishment of a "multivalent" serumbank would be useful.

Before international standards for treponemal antigens can be established, it is necessary, that the antigens be reproduced in different laboratories. The antigen, which is desired standardized, must be the final product of a long series of isolation and purification experiments. Such an antigen should be pure and easy to check by chemical and serological methods. In the meantime, during the experimentation in the research work, some reference preparations would be very useful for collaborating laboratories.

For the research work, as far as isolation of new treponemal antigens is concerned, it would be an advantage if each new isolated antigen, which is considered a valuable product in the research or in the routine diagnostic work, was checked against a collection of standard and multivalent sera.

Let me put forward a suggestion for consideration: I think it would be useful to have an international serumbank containing sera carefully selected from cases of syphilis, yaws and pinta for the various stages of each of these diseases, and from diseases other than treponematoses known to give so-called biological false positive reactions and finally from normal persons. A small committee consisting of qualified persons should accept all sera entering the bank. The sera should have been examined in selected well-known serological laboratories before entering the bank. Evaluation of new antigens for serological tests for treponematoses and of new serological methods would be easier if the publications include the results with sera requested from the international serumbank.

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PART III. Development of Serologic Standards

R. H. ALLEN, M.D.

ABSTRACT

Serological testing for syphilis in Canada is conducted principally in the 10 provincial public health laboratories or their branches, collaborating with the federal Laboratory of Hygiene to achieve uniformity of test results. The federal laboratory prepares standardized antigens for distribution to the provincial laboratories, as well as lyophilized guinea pig complement and reagents. The Laboratory of Hygiene also conducts refresher courses for senior personnel from the provincial laboratories. Evaluation studies are made every second year to ensure maintenance of the uniformity of test results.

The Laboratory of Hygiene has conducted a number of investigations over the years and studied new diagnostic procedures. A not altogether successful attempt has been made to prepare a cardiolipin-like antigen entirely of chemically-pure synthetic components. It has also participated in several studies sponsored by the Serological Reference Centers of the World Health Organization.

Conclusion: The development of national programs is a necessary prerequisite for standardization at the international level.

SOMMAIRE

Les Laboratoires de la Santé Publique des dix provinces du Canada, principalement, ou leurs annexes procèdent à des tests sérologiques de la syphilis, en collaborant avec le Laboratoire fédéral de l'Hygiène en vue de parvenir à une identité de résultats de tests. Le Laboratoire fédéral prépare des antigènes titrés pour les distribuer aux laboratoires provinciaux, ainsi que des réactifs et des compléments de cobayes lyophilisés. Le Laboratoire de l'Hygiène dirige également de cours de perfectionnement pour les cadres du personnel des laboratoires provinciaux. Des études sur l'évaluation sont faites tous les deux ans pour assurer le maintien de l'identité des résultats de tests.

Le Laboratoire de l'Hygiène a mené un certain nombre d'enquêtes pendant des années et a étudié de nouveaux procédés de diagnostic. Une tentative dont le succès n'a pas donné pleinement satisfaction a été faite pour mettre au point un antigène semblable à la cardiolipine, formé entièrement de composants synthétiques chimiquement purs. Il a également participé à plusieurs études subventionnées par les Centres de Références Sérologiques de l'Organisation Mondiale de la Santé.

Conclusion: Le développement de programmes nationaux est une condition préalable nécessaire pour le titrage au niveau international.

RESUMEN

Las pruebas serológicas para la sífilis en el Canada son conducidas principalmente en 10 de los laboratorios de higiene pública de las provincias o en sus subdivisiones, que colaboran con el Laboratorio Federal de Higiene para obtener uniformidad en los resultados de las pruebas. El Laboratorio Federal prepara la normalización de los antígenos para distribuirlos entre los laboratorios provinciales, como también los complementos y reagentes liofilizados de los conejillos de indias. El Laboratorio de Higiene también conduce cursos de repaso al personal antigue de los laboratorios provinciales. Estudios de evaluación se hace cada dos años para asegurar el mantenimiento de la uniformidad del resultado de las pruebas.

El Laboratorio de Higiene ha conducido un número de investigaciones durante varios años y ha estudiado los procedimientos de diagnóstico. Se ha tratado, sin éxito completo, la preparación de un antígeno parecido al cardioplipin, de componentes químicos sintéticos. También ha participado en varios estudios patrocinados por Los Centros de Referencia Serológicas de la Organización Mundial de la Salud.

Conclusión: Es un prerequisito necesario el desarrollo de los programas nacionales para la normalización de los niveles internacionales.

SEROLOGICAL TESTING for syphilis in Canada is conducted principally in the 10 provincial public health laboratories or their branches. For the past 20 years the directors of the provincial laboratories have collaborated with the federal Laboratory of Hygiene in an effort to attain uniformity of test results from province to province. When the program was initiated a number of test procedures and modifications thereof were in use in the different provinces. This was true particularly for complement fixation techniques. A serological evaluation study conducted at the time demonstrated some rather marked discrepancies in test results. Following this evaluation study, at a meeting of provincial laboratory directors, fairly general agreement was reached on the

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choice of test procedures. It was also agreed that the antigens for these tests be obtained from a single central source. The federal laboratory accepted the responsibility of preparing and standardizing the antigens for distribution to the provincial laboratories. A few years later, the preparation of lyophilized guinea pig complement was also undertaken at the Laboratory of Hygiene and it was made available to the provincial laboratories according to their requirements. The preparation and distribution of reagents has been continued to the present time.

For several years, refresher courses were conducted at the Laboratory of Hygiene and attended by senior personnel from each of the provincial public health laboratories. At these courses strict adherence to the procedures recommended by the author-serologists was emphasized. More recently we have accepted senior personnel individually from the various provinces for training whenever desired.

Evaluation studies are conducted every second year. During the first few years after the initiation of the program, a marked improvement in the uniformity of test results from province to province was noted. Generally speaking this uniformity has been maintained.

A number of investigations have been conducted at the federal laboratory. New diagnostic procedures have been studied. In one investigation an attempt has been made, although not altogether successful, to prepare a cardiolipin-like antigen composed entirely of chemically-pure synthetic components.

Miss Stout and Dr. Nielsen have spoken on the development of serologic standards on an international basis. As a national reference laboratory we have participated in several studies sponsored by the Serological Reference Centres of the World Health Organization.

Finally, it seems obvious that the development of national programs is a necessary preliminary step to standardization at the international level.

Fluorescent Treponemal Antibody Test

WILBUR E. DEACON, Ph.D.

ABSTRACT

This test (FTA) was used for the first time as a procedure for syphitis in the Serology Evaluation Research Assembly (SERA) study of 1957. The original method employed test serums diluted 1:5. These were applied to Treponema pallidum smears, and subsequent proof of antibody coupling was accomplished by the use of fluorescein-labeled anti-human globulin as the reaction indicator. Reactions were visualized by means of a UV microscope and appropriate fitters. Positive findings were indicated by brightly fluorescent treponemes.

An analysis of FTA test results suggested that the detected antibodies were probably similar to those operating in the Treponema Pallidum Immobilization (TPI) test. The test as performed in 1957 appeared to possess a high degree of specificity.

In 1958, Riggs and coworkers introduced fluorescein-isothiocyanate, a much improved compound for preparing fluorescein-labeled antiserums. This resulted in an improved test detector system. With the improvement in reagents, however, normal serum controls showed varying degrees of reactivity, with finally about 25% of well-documented normal serums giving some degree of reactivity at 1:5 dilution. Consequently the test procedure for syphilis was modified in 1960 from the original 1:5 to a 1:200 test dilution in order to decrease sensitivity and increase specificity.

The investigation of nonspecific reactions continued particularly in respect to treponemal antigens. It was discovered in 1962 that treponemes share antigens in common, and can be clearly differentiated by fluorescent antibody methods. The studies indicated that treponemal antigens may be separated into two major components: group antigens and specific antigens. It appears that antibodies to these antigens are identical or similar in behavior and that the Reiter antigen complement-fixation test detects the common or group antibody, the same type of antibody discovered by the FTA test in normal serums. This means that the FTA test operates with both group and specific antibodies. By manipulation, however, the FTA test can be made to operate only in respect to specific antibodies.

The present FTA test, using a 1:200 serum dilution, was offered to the several state laboratories for experiment and evaluation shortly after 1960. In view of generally satisfactory results, consideration is being given to substituting it for the TPI procedure.

Also, an international two-year FTA test study under the World Health Organization has been completed, with the participation of national laboratories in Japan, Denmark, England, France, and Italy. Test results appear to be most satisfactory, and it seems that the FTA test offers considerable promise for future WHO serologic surveys.

SOMMAIRE

Ce test (AFT) a été employé pour la première fois comme moyen d'étude de la syphilis dans l'étude faite en 1957 par l'Assemblée de Recherches pour l'Evaluation Sérologique. La méthode suivie à l'origine employait pour les tests des sérums dilués au 1:5. Ceux-ci étaient appliqués à des frottis de Treponema pallidum, et la preuve du couplage d'anticorps était ensuite obtenue par l'usage, comme indicateur de réaction, de la globuline anti-humaine marquée à la fluorescéine. Les réactions étaient rendues visibles à l'aide d'un microscope à l'ultraviolet et de filtres appropriés. Les résultats positifs étaient indiqués par l'éclat fluorescent des tréponèmes.

Une analyse des résultats du test AFT a conduit à penser que les anticorps ainsi découverts étaient probablement semblables à ceux qui entrent en jeu dans le test d'Immobilisation du Tréponema pallidum (ITP). Le test, tel qu'il fut effectué en 1957, semblait présenter un haut degré de spécificité.

En 1958, Riggs et ses collaborateurs introduisirent l'isothiocyanate de fluorescéine, un composé très amélioré pour la préparation des antisérums marqués à la fluorescéine. Cela eut pour résultat un système amélioré de détection par tests. Cependant, avec une amélioration dans les réactifs, les sérums normaux servant de moyens de contrôle firent preuve de degrés variables de réactivité, avec en dernier lieu environ 25% des sérums normaux de composition bien connue montrèrent une certaine réactivité à la dilution d'1:5. Par suite, la méthode de test pour la syphilis fut changée en 1960 de la dilution première d'1:5 à celle d'1:200, de façon à diminuer la sensitivité et à augmenter la spécificité.

On continua l'étude des réactions non spécifiques, particulièrement en ce qui concerne les antigènes des tréponèmes. On découvrit en 1962 que les tréponèmes avaient des antigènes communs et qu'on peut nettement différencier les tréponèmes par les méthodes d'anticorps fluorescents.

Les études indiquent que les antigènes tréponémaux peuvent se diviser en deux catégories principales: les antigènes de groupes et les antigènes spécifiques. Il apparaît que les anticorps de ces antigènes se comportent de façon identique ou semblable et que l'antigène du test Reiter de fixation du complément découvre l'anticorps commun ou de groupe, ce même type d'anticorps mis en évidence dans les sérums normaux par le test AFT. Cela signifie le test AFT agit également avec les anticorps de groupe et spécifiques. Par manipulation, cependant, on peut faire agir le test AFT seulement en ce qui concerne les anticorps spécifiques.

Le test AFT actuel, employant le sérum dilué au 1:200, a été soumis peu après 1960 à plusieurs laboratoires officiels chargés d'en faire l'essai et l'évaluation. Les résultats ayant généralement été satisfaisants, on

songe à le substituer à la méthode d'Immobilisation du Treponema pallidum.

En outre, une étude internationale du test AFT d'une durée de deux ans a été effectuée sous la direction de l'Organisation Mondiale de la Santé, avec la participation de laboratoires nationaux au Japon, au Danemark, en Angleterre, en France et en Italie. Les résultats paraissent très satisfaisants, et il semble que le test AFT permette de grandes espérances aux futures enquêtes sérologiques de l'OMS.

RESUMEN

La Prueba (FTA) fué usada por primera vez como un procedimiento para la sífilis en el estudio de la Reunión de Investigaciones para la Evaluación Serológica (SERA) de 1957. El método original empleó pruebas de suero diluidas al 1:5. Estas fueron aplicadas a las extensiones del Treponema pallidium y prueba subsecuente de la unión del anticuerpo que se llevó a cabo por el uso de la globulina anti-humana rotulada fluoresecente como el indicador de reacción. Las reacciones pudieron ser visualizadas por medio de un microscopio UV y de filtros adecuados. Descubrimientos positivos fueron indicados por treponemas luminosos fluorescientes.

Un analisis de los resultados de las Pruebas FTA sugiere que los anticuerpos descubiertos fueron probablemente similares a los existentes en las Pruebas de Inmovilización del Treponema Pallidium (TPI). La Prueba como se realizó en 1957 parecia tener un alto grado de especificidad.

En 1958, Riggs y sus colegas introdujeron el isotiocyante fluorescente, un compuesto muy perfeccionado para preparar antisueros rotulados fluorescentes. Esto dió resultado a un mejoramiento en el sistema de pruebas detectoras. Con el perfeccionamiento de los reagentes, sin embargo, finalmente los controles normales del suero mostraron varios grados de reactividad con aproximadamente 25% de sueros normales bien documentados dando algunos grados de reactividad a la dilución de 1:5. Consecuentemente, el procedimiento de las pruebas para la sífilis fué modificado en 1960 de la prueba por dilución original de 1:5 a 1:200 para disminuir la sensibilidad y aumentar la especificidad.

La Investigación de reacciones no-específicas continuaron, particularmente aquellas en relación con los antígenos treponemales. En 1962 se descubrió que todos los treponemas tenían antígenos en común y que podían ser claramente diferenciados por métodos de anticuerpos fluorescentes. Estudios indicaron que los antígenos treponemales pueden ser separados en dos componentes principales: antígenos de grupos y antígenos específicos. También parece que los anticuerpos de estos antígenos son idénticos o similares en su conducta y que la Prueba de fijación de complementos de antígenos de Reiter detecta a los anticuerpos comunes o de grupo, que es el mismo tipo de anticuerpo descubierto por la Prueba de FTA en sueros normales. Esto significa que la Prueba de FTA opera en ambos, los anticuerpos de grupo y los antícuerpos específicos. No obstante, por medio de la manipulación, la Prueba de FTA puede operar solamente en relación con los anticuerpos específicos.

La Prueba de FTA actual, que utiliza una dilución de suero de 1:200, fué ofrecida a varios laboratorios del estado para su experimentación y evaluación poco después de 1960. En vista de los resultados generalmente satisfactorios, se le ha dado consideración para sustituirla por el procedimiento de TPI.

También, el estudio internacional de la Prueba de FTA por el período de dos años patrocinado por la Organización Mundial de la Salud se ha llevado a cabo, con la participación de laboratorios nacionales en Japón, Dinamarca, Inglaterra, Francia, e Italia. Los resultados de las Pruebas parecen ser muy satisfactorios, y luce que la Prueba FTA ofrece una promesa considerable para el futuro de las encuestas serológicas de La Organización Mundial de la Salud.

THE FLUORESCENT Treponemal Antibody (FTA) test originally described as an experimental procedure in 1957 was used for the first time as a test for syphilis in the Serology Evaluation Research Assembly more commonly called the SERA Study. The original method employed test serums diluted 1:5. These were applied to *Treponema pallidum* smears and subsequent proof of antibody coupling made use of fluorescein-labeled antihuman globulin as the reaction indicator. Reactions were visualized by means of a UV microscope and appropriate filters.

(*Note: The speaker showed two colored slides: one indicating positive findings demonstrated by brightly fluorescent treponemes; the other showing a nonreactive smear with no evidence of treponemes.*)

This in brief was the FTA test procedure employed in the SERA Study of 1957. An analysis of the FTA test results suggested that the detected antibodies were probably similar to those operating in the Treponema Pallidum Immobilization (TPI) test and this in turn gave promise that the procedure might serve as a possible substitute in the future. In this connection, it should be noted that the FTA test as performed in 1957 appeared to possess a high degree of specificity, or in other words was nonreactive in respect to normal serums. This finding is of considerable importance for it relates directly to test difficulties that were later observed and which will be presently considered in detail.

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Improved Reagents

In 1958, Riggs and coworkers introduced fluorescein-isothiocyanate, a much improved compound for preparing fluorescein-labeled antiserums. When this chemical became available, it was utilized for the preparation of the FTA test reagent. Almost immediately, an improvement in the test detector system was noted. Reactions became more brilliant and an increase in reactivity was observed. Coincident with the improvement of reagents, normal serum controls demonstrated varying degrees of reactivity. That is to say some test serums formerly considered negative now became reactive. It was finally determined that approximately 25% of well-documented normal serums gave some degree of reactivity at the 1:5 dilution. Since the original observation of the occurrence of nonspecific reactions in the FTA test, this problem has been under constant study. Because until now it has not been possible to control these reactions by other than dilution methods, the test procedure for syphilis was modified in 1960 from the original 1:5 test dilution to a 1:200 test dilution. As mentioned, however, the investigation of nonspecific reactions continued.

Treponemal Antigen Studies

Among other things, an investigation of treponemal antigens was undertaken in an effort to discover a clue that might relate to these findings. Results are illustrated in Table 1. This table accomplishes two objectives: First, the upper block (Block A) shows that all of the treponemes studied possess antigens in common. Observe the occurrence of cross-reactions in every case. In Block B, antiserums absorbed with the Reiter treponeme have lost the shared component and reveal now only the specific fraction peculiar to each treponeme. This may be interpreted to mean that all of the treponemes and corresponding antiserums contain a nonspecific component. This observation is of particular importance since it relates to an understanding of syphilis serology and the use of *T. pallidum* and the Reiter treponeme as antigens in serologic tests.

The second accomplishment illustrated here demonstrates that treponemes can be clearly differentiated by fluorescent antibody methods. Since it is not the purpose of the present report to discuss treponemal taxonomy, no further comments will be made on the subject at this time.

Briefly then the following observations may be made: It appears that treponemal antigens may be separated into two major components: group antigens and specific antigens. This seems to be true whether the microorganism in question is a pathogen or a saprophyte. As an example, the group or common antigen of *T. pallidum* is identical or very similar to the common antigen possessed by *Treponema microdentium*, a mouth treponeme, or *Treponema zuelzerae*, a free-living mud microorganism. For the same reason, antibodies to these antigens are identical or similar in behavior. Because of this, one would expect to find antibodies for group antigens in syphilis serums and in normal serums also if a human is capable of giving an antibody response to his own trep-

Table 1. Differentiation of treponemes by means of absorbed [1] fluorescein-labeled antiserums

Fluorescein-labeled treponemal antiserums	Antigens			
	T. pallidum	Reiter treponeme	*T. zuelzerae*	*T. microdentium*
A. Unabsorbed serums:				
Treponema pallidum	R [2]	R	R	N [3]
Reiter treponeme	R	R	R	N
Treponema zuelzerae	R	R	R	N
Treponema microdentium	R	R	R	R
B. Absorbed with Reiter treponeme:				
Treponema pallidum	R	N	N	N
Reiter treponeme	N	N	N	N
Treponema zuelzerae	N	N	R	N
Treponema microdentium	N	N	N	R
C. Absorbed with *Treponema pallidum* or *Treponema zuelzerae:*				
Reiter treponeme	N	R	N	N

[1] Or blocking antibody.
[2] R: Reactive.
[3] N: Nonreactive.

Table 2. Fluorescent treponemal antibody quantitations before and after Reiter treponeme absorption

Serums	Unabsorbed FTA dils.	Absorbed FTA dils.
Normal	100	<5
Primary syphilis	100	50

onemal flora. The Reiter antigen complement-fixation test apparently detects the common or group antibody, the same type of antibody apparently discovered by the FTA test in normal serums. This is shown in Table 2. Here, the two serums illustrated have identical FTA titers. One was obtained from a syphilitic donor and the other from a normal individual. A clear-cut antibody difference in the two serums is noted after absorption with the Reiter treponeme. In contrast to the syphilis serum, all antibody has been removed from the normal serum by the absorption process. Since group antibody occurs in normal as well as syphilis serums, its significance in terms of syphilis is open to question.

In Table 3 it is shown that the FTA test can be made to operate without interference from group antibodies. This is demonstrated following removal of the common antibody by means of Reiter treponeme absorption. In viewing this illustration, consider first that all of the serums were shown to be reactive in the several tests prior to absorption and that only the Reiter tests (FTA-Reiter and Reiter Protein Complement-Fixation) became nonreactive after absorption. Your attention is especially directed to the reactivity of the FTA test using *T. pallidum* antigen and the loss of reactivity in the FTA test using the Reiter treponeme following absorption. These results explain why the Reiter treponeme cannot be substituted for *T. pallidum* in the FTA test as recently proposed. The illustration clearly indicates that the FTA test operates with both group and specific antibodies, but by manipulation it can be made to operate with specific antibodies only. When this is accomplished, results are similar to the TPI test. This of course should be given consideration as a future modification of the FTA test procedure.

FTA Test Evaluation Studies

In respect to the performance of the present FTA test in various laboratories, personal observations indicate that problems encountered are similar in many ways to those of any new test procedure. Since the test makes use of an unfamiliar instrument to most serologic laboratories, the UV microscope tends to complicate a rather simple test procedure. It seems, however, like other test methods that by the employment of properly standardized reagents and controls results usually become quite satisfactory with experience.

The present FTA test making use of the 1:200 serum dilution was offered to the several state laboratories on an experimental and evaluation basis shortly after 1960. There are presently 15 laboratories participating. In at least one instance, the test has been found to be a suitable substitute for the TPI procedure and is being used in the same way. Several other laboratories have indicated that they are considering a similar change also. This would seem to indicate that the test as presently used is obtaining satisfactory results.

In this connection, mention should also be made of an international FTA test study just completed that was sponsored by the World Health Organization. In this study extending over a two year period, national laboratories in Japan, Denmark, England, France and Italy have participated. As in the case of state evaluation studies, the Venereal Disease Re-

Table 3. Reactivity of human serums following Reiter treponeme absorption

Serums	*Unabsorbed:* test results		*After absorption:* test results				
	FTA using *T. pallidum*	FTA using Reiter treponeme	FTA using *T. pallidum*	FTA using Reiter treponeme	TPI	TPCF	KRP
C 68	3, 200	1, 600	800	<10	R	R	N
C 41	800	200	200	<10	WR	R	N
C 49	800	200	400	<10	INC [1]	R	N
C 42	800	200	200	<10	R	R	N

[1] INC: Inconclusive.

search Laboratory has served as the control testing center and has furnished reagents where required. From the standpoint of personal observations, the comparison of test results obtained by the several laboratories has been most satisfactory. This is especially true when one considers the difficulties encountered in communication and in training. It would now appear that the FTA test offers considerable promise in relation to future WHO serologic surveys.

In conclusion, giving adequate consideration to the new information just discussed, what can be said about the future of the FTA test. Certainly it is obvious that a future modification of the procedure is justified in the light of new knowledge. This does not necessarily mean that the present FTA test is inadequate or unsatisfactory. A modification in the direction of increased sensitivity and specificity is always welcome in syphilis serology. Its practical application awaits future investigation.

Recent Developments in Rapid Serologic Testing

JOSEPH PORTNOY, Ph.D.

ABSTRACT

The RPR Card test was conceived to fill the need for a serologic test for syphilis and other treponematoses that could be performed in the field or as an office procedure. The following characteristics contribute to the effectiveness of the Card test described in this paper: (a) a rapid, simple method for obtaining plasma from finger-stick blood, requiring no centrifuge; (b) a stable antigen suspension containing charcoal; (c) rapid performance on a plastic-coated card; (d) results are read with the naked eye, no microscope is used; (e) adequate sensitivity and specificity.

A comparison of 2400 randomly selected patients in two venereal disease clinics was made in this preliminary evaluation. The RPR Card test was performed at the clinics using the plasma obtained with the plasma collection device. Results were compared with the VDRL Slide test performed on specimens obtained by venipuncture. In general, good agreement between the Card and VDRL Slide tests was observed. Comparison of results of the Card test with clinical diagnoses indicated a satisfactory sensitivity and specificity. The RPR Card test was also found to possess satisfactory reactivity with unheated serum; these tests were accomplished with approximately 250 specimens which included three of the treponematoses—syphilis, yaws, and pinta.

SOMMAIRE

Le test RPR sur fiches a été conçu pour répondre au besoin d'un test sérologique pour la syphilis et autres tréponématoses qui puisse être effectué sur les lieux ou dans un cabinet médical. Les caractéristiques suivantes contribuent à la valeur du test sur fiches décrit dans cet article: (a) une méthode simple et rapide permettant de retirer le plasma de sang obtenu par piqûre au doigt, sans avoir besoin de centrifuge; (b) une suspension d'antigènes stable contenant du charbon de bois; (c) un procédé de réaction rapide sur fiche recouverte de matière plastique; (d) la lecture des résultats à l'oeil nu, sans microscope; (e) un degré suffisant de sensibilité et de spécificité.

Dans cette évaluation préliminaire, on a comparé 2400 malades choisis au hasard dans deux cliniques anti-vénériennes. Le test RPR sur fiches fut effectué dans ces cliniques en employant du plasma recueilli par la méthode en question. On a comparé les résultats avec ceux du test sur plaques des Laboratoires de Recherches Anti-Vénériennes effectué sur des specimens obtenus par ponction veineuse. Dans l'ensemble, les tests sur fiches et sur plaques ont bien concordé. Une comparaison des résultats du test sur fiches avec des diagnostics cliniques a montré un degré satisfaisant de sensibilité et de spécificité. On a aussi constaté que le test RPR sur fiches possédait une réactivité satisfaisante avec du sérum non chauffé; ces tests ont été effectués sur environ 250 specimens comprenant trois des tréponématoses: la syphilis, le pian et la pinta.

RESUMEN

La Prueba de Tarjetas RPR fue concebida para llenar la necesidad de un examen serológico para la sífilis y otras treponematosis que se pueda aplicar en el campo o como un procedimiento de oficina. Las siguientes características contribuyen a la afectividad de las Pruebas de Tarjetas descritas en este artículo: (A) un método rápido y simple para obtener plasma de la sangre producida por un pinchazo en el dedo, sin-requerir centrífuga; (B) una suspensión antigena estable que contiene carbón; (C) aplicación rápida en una tarjeta cubierta de plástico; (D) los resultados son obtenidos á simple vista, no se usa el microscopio.

Una comparación de 2,400 pacientes seleccionados al azar en dos clínicas de enfermedades venéreas fué hecha para esta evaluación preliminar. La Prueba de Tarjetas RPR fué aplicada en la clínica usando el plasma obtenido con el método de copilación de plasma. Los resultados fueron comparados con la Prueba de Investigaciones de Laboratorio de Enfermedades Venéreas (VDRL) por medio de portaobjetos aplicados en muestras obtenidas por métodos intravenosos. En general, se pudo observar un buen resultado entre las Pruebas de Tarjetas y las Pruebas de VDRL. La comparación de los resultados de la Prueba de Tarjetas con el diagnóstico clínico indicaron una especificidad y sensibilidad satisfactoria. Se encontró también que las Pruebas de Tarjetas poseen una reactividad satisfactoria con el serum sin calentar; estos exámenes fueron obtenidos de una muestra de aproximadamente 250 pacientes, que incluyeron á tres de las treponematosis—sífilis, frambuesia y pinta.

A GROUP OF serologic tests for syphilis which feature the use of unheated plasma and unheated serum and an antigen suspension prepared from cardiolipin, lecithin, and cholesterol, are rapidly performed, and have been designated as the rapid reagin tests. Whereas conventional tests for syphilis require the heating of serums to achieve satisfactory sensitivity, the use of a chemical additive, choline chloride, in the antigen suspension accomplishes a similar purpose in the rapid reagin tests.

The various rapid reagin tests were developed to fill specific needs for serologic testing. The first of these, designated as the Rapid Plasma Reagin or RPR test (*1*) was developed for use in population groups whose rapid movement or concentration present certain difficulties in the control of syphilis. The Plasmacrit or PCT test (*2*) was developed as an adaptation of the RPR test by Andujar and Mazurek to utilize the waste plasma from microhematocrit capillary tubes. It has been used as a screening procedure in hospitals and blood banks. The Unheated Serum Reagin or USR test (*3*) was developed to provide a screening test for the public health laboratory, offering economies in space, personnel, and time.

Because of their dependence on electrically-operated equipment, none of the aforementioned tests could be effectively employed as a truly field procedure. The development of a field test hinged to a great extent on the availability of a means for obtaining a specimen of plasma or serum rapidly and without the use of a centrifuge or other powered equipment. Other features required for a field test were a stable antigen suspension, rapid and simple performance, and high sensitivity level.

Through a cooperative study with Dr. John H. Brewer of Hynson, Westcott and Dunning and the Venereal Disease Research Laboratory, a test embodying the features required was developed and has been designated the Rapid Plasma Reagin (RPR) Card test.

The purpose of this report is to describe the technique for the RPR Card test and to present the preliminary evaluation of this test compared with the VDRL Slide test in selected patient categories.

Technique for the RPR Card Test

(*At this point the speaker showed 12 colored slides on the technique of the RPR Card test.*)

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In the RPR Card test the Brewer Plasma Collection Slide is used to obtain plasma for serologic testing. It consists of a plastic-coated board with a key-hole-shaped depression. The depressed area of the slide is coated with an anti-coagulant and a lectin which are stable at room temperature. The lectin is of a type which will cause both red and white cells to agglutinate, leaving the plasma free to flow down into the collection slot.

Blood is obtained by finger-stick and three drops are allowed to fall freely on the circular portion of the depressed area of the slide. Holding a toothpick in an almost horizontal position, the blood is spread over the entire circular area, stirring gently for approximately 30 seconds.

The slide is now picked up and using a tilting motion, the blood is caused to rotate within the circle until a pronounced clumping of the blood cells is observed. This coincides with the separation of the plasma. The slide is now folded and placed on a flat surface to permit the plasma to drain into the collection slot.

With a graduated capillary tube, 0.03 ml of the unheated plasma is transferred to a plastic-coated card designated as a Brewer Diagnostic Card. One drop of antigen suspension (approximately $\frac{1}{70}$ ml) is added, using a needle and plastic dispensing bottle. The antigen suspension is identical to that employed in the rapid reagin tests (*4*) except for the addition of a specially prepared charcoal, which acts as a visualization agent. Briefly, it is prepared by resuspending the sediment obtained from centrifugating VDRL Slide flocculation test antigen suspension (*5*) in a solution containing choline chloride, ethylene diamine tetraacetic acid, phosphate buffer, merthiolate, and charcoal.

Antigen suspension and plasma are thoroughly mixed with a clean toothpick, spreading the mixture so that it fills the entire test surface. The test card is tilted to-and-fro for a maximum time of 4 minutes, allowing time for the mixture to flow into the apex so that the particles will be in close proximity, and then spread out as the particles flow away from the apex.

The test is read macroscopically and those specimens showing characteristic black clumps are reported Reactive; those specimens showing no clumping are reported Nonreactive.

Comparison of RPR Card and VDRL Slide Tests

The RPR Card test was performed on plasma from approximately 2400 randomly selected clinic patients who were routinely subjected to

Table 1. Comparison of the RPR Card (Plasma) and VDRL Slide Tests on 600 syphilis patients

Clinical category	RPR Card Test		VDRL Slide Test		
	Test result	Number patients	Reactive	Weakly reactive	Nonreactive
Primary and secondary syphilis, untreated	R	54	51	1	2
	N	3	1	1	1
Primary and secondary syphilis, treated	R	94	75	7	12
	N	85	6	6	73
Latent syphilis, untreated	R	24	23	0	1
	N	2	2	0	0
Latent syphilis, treated	R	217	176	24	17
	N	82	23	7	52
Late syphilis, treated	R	9	8	0	1
	N	0	0	0	0
Congenital syphilis, treated	R	28	20	5	3
	N	2	0	0	2
Total	R	426	353	37	36
Percent		71. 0	58. 8	6. 2	6. 0
Total	N	174	32	14	128
Percent		29. 0	5. 4	2. 3	21. 3
Total		600	385	51	164
Percent		100. 0	64. 2	8. 5	27. 3

R = Reactive.
N = Nonreactive.

venipuncture for VDRL Slide Testing. Finger-stick blood was obtained and the RPR Card test was performed at the clinic sites. Results of the VDRL Slide test (*6*) and diagnoses were later obtained from clinic records for comparative purposes.

The effectiveness of the RPR Card test in providing serologic support for the diagnosis of syphilis is apparent from the results given in Table 1, which also demonstrates the generally good agreement between the Card test and the VDRL Slide test. In untreated syphilis, the Card test had essentially the same capacity to detect antibody (reagin) as the VDRL Slide test, and a high level of agreement between the two tests was apparent. On the basis of the consideration that a Reactive RPR Card test accompanied by a Reactive or Weakly Reactive VDRL Slide test constituted agreement as did Nonreactive results with both tests, 7 out of 83 cases of untreated syphilis or approximately 8% gave disagreeing results. By contrast, in the treated syphilis group, approximately 15% of 517 cases showed disagreement. There was little difference in the reactivity level of the two tests; 71.0% of the patients with a clinical diagnosis of syphilis were Reactive in the RPR Card test and 72.7% of these patients were Reactive (64.2%) or Weakly Reactive (8.5%) in the VDRL test.

The potential value of the RPR Card test as a screening procedure and as an additional arouser of a suspicion of syphilis is suggested from Table 2, which presents a comparison of the RPR Card test and VDRL Slide test on 1,802 patients without definite syphilis diagnoses. In 245 untreated patients named as known contacts to infectious syphilis, 27 or approximately 11%, were Reactive in the Card test; approximately 7% were Reactive and 2% were Weakly Reactive in the VDRL test. The group of patients identified as "cluster, untreated" represents individuals asked to report to the clinics through the use of the cluster procedure (*7*), a technique for increasing the detection of syphilis by blood-testing contacts, associates, and suspects related to known infectious syphilis. In this category, approximately twice the number of reactors was obtained with the RPR Card test as was obtained with the VDRL Slide. This disparity in the number of reactors was likewise seen in the premarital and untreated gonorrhea categories. Although the percentage of Reactive results in the RPR Card test was low, approximately 2% in each of these categories, the VDRL Slide test gave 1% or less reactors. It was only in the category "no history of syphilis" which included patients with genitourinary complaints or conditions, chancroid, or diagnosed as biologic false positive,

Table 2. Comparison of the RPR Card (Plasma) and VDRL Slide Tests on 1,802 patients without syphilis diagnoses

Patient sources	RPR Card Test		VDRL Slide Test		
	Test result	Number patients	Reactive	Weakly reactive	Nonreactive
Contact to infectious syphilis, untreated	R	27	16	4	7
	N	218	0	2	216
Contact to infectious syphilis, treated	R	3	0	1	2
	N	14	0	2	12
Cluster, untreated	R	11	2	1	8
	N	63	0	2	61
No history of syphilis	R	54	31	9	14
	N	394	6	9	379
Premarital	R	6	2	0	4
	N	306	0	1	305
Gonorrhea, untreated	R	16	2	0	14
	N	690	0	3	687
Total	R	107	53	15	49
Percent		6. 0	3. 0	0. 8	2. 7
Total	N	1, 685	6	19	1, 660
Percent		94. 0	0. 3	1. 1	92. 1
Total		1, 802	59	34	1, 709
Percent		100. 0	3. 3	1. 9	94. 8

R = Reactive.
N = Nonreactive.

that the number of reactors in the two tests was essentially the same.

Since the RPR Card test was significantly more reactive than the VDRL Slide test in these patients without syphilis diagnoses, it might be inferred that the Card test was more nonspecific. However, since the patients attending the clinics are venereal disease prone, the possibility exists that syphilis, past or present, was being detected by the Card test. In the absence of other data such as treponemal tests in these cases, it is quite difficult to arrive at a better understanding of the reactivity pattern. If the Card test were more nonspecific than the VDRL test, it might be expected that this would also be noted with serums of presumed nonsyphilitic patients. However, it will be seen in Table 4 that the RPR Card test was more specific than the VDRL test. It is possible, of course, that qualitative differences existing between plasma and serum may be responsible for this peculiar behavior. It should be realized

Table 3. Comparison of the RPR Card and VDRL Slide Tests on serum bank specimens (Treponematoses)

Clinical category	RPR Card Test		VDRL Slide Test		
	Test result	Number patients	Reactive	Weakly reactive	Nonreactive
Early syphilis, untreated [1]	R	18	16	2	0
	N	7	0	0	7
Syphilis, treated [2]	R	19	13	5	1
	N	21	1	0	21
Yaws, treated	R	29	29	0	0
	N	0	0	0	0
Pinta, treated	R	37	33	3	1
	N	5	3	1	1

[1] Includes primary and secondary.
[2] Includes primary, secondary, latent, and late.
R = Reactive.
N = Nonreactive.

Table 4. Comparison of the RPR Card and VDRL Slide Tests on serum bank specimens (presumed nonsyphilitic)

Clinical category	RPR Card Test		VDRL Slide Test		
	Test result	Number patients	Reactive	Weakly reactive	Nonreactive
Normals, presumed	R	0	0	0	0
	N	20	0	0	20
Diseases other than syphilis	R	0	0	0	0
	N	20	0	0	20
BFP reactors	R	27	20	7	0
	N	18	2	0	16
Leprosy	R	0	0	0	0
	N	27	3	2	22

R= Reactive.
N= Nonreactive.

that the reactions noted are compatible with the concept that the RPR Card test may be used as a screening procedure and suspicion arouser.

Although the RPR Card test was conceived for use as a field or office procedure employing plasma, it was of interest to examine the behavior of unheated serum in an identical test. The results presented in Tables 3 and 4 clearly indicate that the RPR Card test had a satisfactory reactivity level with unheated serum.

Serums were obtained from a serum bank maintained at the Venereal Disease Research Laboratory for the purpose of evaluating serologic tests. In Table 3, it may be seen that essentially similar results were obtained in the RPR Card and VDRL Slide tests on patients with syphilis, yaws, or pinta. In pinta, 4 of 5 specimens Nonreactive in the Card test were Reactive or Weakly Reactive in the VDRL Slide test.

In the presumed nonsyphilitic group, the Card test was somewhat more specific than the VDRL test (Table 4). The results obtained in leprosy were particularly of interest since nonreactivity was obtained in all 27 patients, whereas, 5 of the these patients gave some reactivity in the VDRL Slide test. These results suggest that the RPR Card test might be more specific than the VDRL Slide test in detecting treponematoses in endemic areas of leprosy.

Summary

In summary, there has been an urgent need for a more efficient field or office procedure for the treponematoses. The RPR Card test has the following characteristics which contribute to its effectiveness:

1. A rapid simple method for obtaining plasma from finger-stick blood which requires no centrifuge.
2. A stable antigen suspension containing charcoal.
3. Rapid performance on a plastic-coated card. A given test will take between 5–8 minutes from the withdrawal of the blood sample.
4. Results are read with the naked eye—no microscope is used.
5. Preliminary findings contained in this report indicate that the RPR Card test has adequate sensitivity and specificity.

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Influence of Macroglobulins on the Specificity of Fluorescent Treponemal Antibody (FTA) Test for Syphilis

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ABSTRACT

The TPI, although regarded as the most reliable serologic test for differentiating biologic false positive (BFP) from true syphilitic reactions, is limited by technical problems and high cost. Studies thus far indicate that the Fluorescent Treponemal Antibody (FTA) test may be equally reliable but more practical. After parallel FTA and TPI tests on 3,000 sera submitted to our laboratory, agreement of FTA and TPI results was obtained with 90% of the sera examined.

It was noted, however, that sera from certain nonsyphilitic patients with elevated macroglobulin levels gave false reactions in the FTA. Subsequent studies showed that the factor responsible for these overt reactions could be sedimented by centrifugation at 100,000 ref, whereas similar treatment had no detectable effect on the specific antibody in syphilitic sera. Thus the nonspecific reactions due to the presence of high molecular weight globulins in the serum could be differentiated from reactions connected with homologous antibody.

The practice of conducting parallel FTA and TPI tests on all sera submitted for TPI examination has improved confidence in the validity of serologic findings, and on occasion has prevented the reporting of erroneous TPI results. The FTA appears to provide a highly specific and technically feasible diagnostic procedure for laboratories not having facilities for performing the TPI.

SOMMAIRE

Le test d'immobilisation du Treponema pallidum, tout en étant considéré comme le plus sûr des tests sérologiques pour distinguer les fausses réactions positives biologiques des véritables réactions syphilitiques, a des limites imposées par des difficultés techniques et par son coût élevé. D'après les études effectuées jusqu'ici, le test de l'anticorps fluorescent du tréponème serait aussi sûr mais plus pratique. Après avoir effectué parallèlement ces deux tests sur 3.000 sérums soumis à notre laboratoire, nous avons obtenu des résultats concordants pour 90% des sérums examinés.

Nous avons cependant remarqué que les sérums de certains malades non syphilitiques donnaient des réactions fausses avec le test de l'anticorps fluorescent du tréponème. Des études ultérieures ont montré que le facteur responsable de ces réactions évidentes pouvait être sédimenté par centrifugation à 100.000 fer, alors qu'un traitement semblable restait sans effet sensible sur l'anticorps spécifique dans les sérums syphilitiques. Les réactions non spécifiques dues à la présence dans le sérum de globulines de poids moléculaire élevé pourraient donc être ainsi distinguées des réactions liées à un anticorps homologue.

Grâce à notre méthode d'effectuer parallèlement les tests de l'anticorps fluorescent du tréponème et de fixation du Treponema pallidum sur tous les sérums qui nous étaient soumis pour ce dernier, nous avons accru notre confiance dans la validité des résultats des examens sérologiques, et nous avons parfois évité de donner de faux résultats pour le test d'immobilisation du Treponema pallidum. Le test de l'anticorps fluorescent du tréponème semble fournir une méthode de diagnostic très spécifique et de réalisation technique possible aux laboratoires qui ne sont pas à même d'effectuer l'immobilisation du Treponema pallidum.

RESUMEN

La TPI á pesar de ser considerada la prueba serológica más segura, para diferenciar el falso positivo biológico (BFP) de las verdaderas reacciones sifilíticas, está limitado por los problemas técnicos y un alto costo. Los estudios realizados hasta ahora indican que la prueba del Anticuerpo del Treponema Fluorescente (FTA) pueden ser igualmente confiables y mas prácticas. Despues de realizar pruebas paralelas de FTA y TPI en 3.000 de los sueros presentados á nuestro laboratorio, se obtuvo perfecto acuerdo en los resultados de FTA y TPI con el 90% de los sueros examinados.

Se observó, sin embargo, que los sueros de ciertos pacientes no sifilíticos con niveles elevados de macroglobulina dieron reacciones falsas en el FTA. Estudios realizados posteriormente mostraron que el factor responsable de estas reaeciones evidentes pueden ser sedimentados por centrifugación al 100.000 ref. Mientras que el tratamiento similar no tuvo un efecto revelador en el anticuerpo especifico en los sueros sifilíticos. De esa manera las reacciones no especificas debida a la preseneia de globulina de alto peso molecular en el suero puede ser diferenciado de las reacciones conectadas con el antieuerpo homólogo.

La práctica de llevar a cabo las pruebas paralelas de FTA y TPI en todos los sueros presentados para ser examinados por TPI han mejorado la confianza en la validez de los exámenes serológicos y en algunas ocasiones han evitado rendir el informe de resultados erróneos de TPI. La FTA parece promover un proceso diagnóstico altamente específico y técnicamente posible que los laboratorios que no tienen la facilidad de realizar la TPI.

FOR MANY YEARS the TPI has been regarded as the most reliable serologic test for differentiating biologic false positive (BFP) from true syphilitic reactions. Complex technical problems and high cost, however, have seriously limited its use, and at the present time only a few key laboratories find it feasible to perform the test as a diagnostic service. Intensive efforts have been made to develop an equally reliable but more practical test procedure, and studies thus far indicate that the Fluorescent Treponemal Antibody (FTA) test may serve in this capacity. During the past two and one-half years we have conducted parallel FTA and TPI tests on more than 3,000 sera submitted to our laboratory for TPI examination. It is noteworthy that these specimens were from cases presenting diagnostic problems, and the majority represented either true syphilitic or BFP reactors. Thus, they provided an especially critical measure of the efficacy of the FTA. The findings were comparable to those presented in our previous report. Agreement of FTA and TPI results was obtained with 90% of the sera examined, and correlation could be further increased to approximately 95% simply by retesting the specimens that gave discordant results in initial examinations. With regard to the latter, it was noted that reversals of reaction occurred most frequently with the TPI, and usually were associated with sera containing threshold amounts of antibody.

Throughout the course of the earlier evaluations, review of case histories revealed no particular disease syndrome that was consistently associated with false reactions in either test. However, it was noted recently that sera from certain nonsyphilitic patients with rheumatoid arthritis, particularly those with elevated bentonite flocculation titers, reacted in the FTA but not in the TPI. Since the most striking serologic feature of rheumatoid arthritis is appearance of the so-called "rheumatoid factor," a high molecular weight component of gamma globulin with a sedimentation coefficient of 22 S, consideration was given to the possibility that this factor, and conceivably other macroglobulins, might predispose false FTA reactions. The present report deals with studies conducted along these lines.

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FTA and TPI Tests on Sera from Nonsyphilitic Patients with High Macroglobulin Levels

A group of sera from patients with rheumatoid arthritis or other disorders known to lead to elevated macroglobulin levels was tested in the FTA and TPI. The results are given in Table 1. The bentonite flocculation titer of each serum is included to provide an index of the macroglobulin level. In general, sera giving bentonite titers greater than 512, reacted in the FTA but were nonreactive in the TPI. The notable exception was serum No. 2 having a titer of 1024. It is suggested that this apparently anomalous result reflects the heterogeneous character of macroglobulins, and indicates that this particular serum contained atypical high molecular weight components that for some unapparent reason failed to mediate the usual reaction in the FTA. Specimens with bentonite titers of 512 or less, on the other hand, generally were nonreactive in the FTA as well as TPI.

Effect of High-Speed Centrifugation

Subsequent studies designed to provide direct evidence concerning the role of macroglobulins in the specificity of FTA reactions were conducted on two representative groups of sera. One group consisted of rheumatoid arthritic sera with elevated bentonite flocculation titers, and the other, a group of sera from proven cases of syphilis. All specimens were centrifuged at 100,000 rcf for 1 hour, and the supernate and sedimented portion of each was evaluated in FTA and TPI tests. Results of these experiments are illustrated in Table 2. First, let us direct our attention to the reactions obtained with the two rheumatoid arthritic sera. You will note that prior to centrifugation, both specimens reacted in the FTA but not in the TPI. However, after centrifugation, the components responsible for reactivity in the FTA were concentrated in the

Table 1. Serologic activity of sera from nonsyphilitic patients with elevated serum macroglobulins

Serum No.	Bentonite flocculation titer	Results[1] in given serologic test for syphilis		Clinical diagnosis
		FTA	TPI	
1	8192	Wr	—	Post necrotic cirrhosis.
2	1024	—	—	Rheumatoid arthritis.
3	1024	R	—	Rheumatoid arthritis.
4	1024	R	—	Laennec's cirrhosis.
5	512	R	—	Unexplained dermatitis.
6	512	—	—	Cirrhosis; (?) post necrotic.
7	512	—	—	No disease found.
8	512	—	—	Undiagnosed arthritis.
9	256	—	Wr	Laennec's cirrhosis.
10	256	—	—	Rheumatoid arthritis.
11	256	—	—	Idiopathic thrombocytopenia purpura.
12	256	—	—	Rheumatoid arthritis.
13	(2)	R	—	Severe rheumatoid arthritis.

[1] Reactions designated: Reactive (R) and weakly reactive (Wr). The negative sign (—) denotes nonreactive.
[2] Latex aggl. titer 4000.

sedimented fraction; the supernates were essentially nonreactive. In contrast, centrifugation had no observed effect on the reactivity of the syphilitic sera. There was no detectable reduction of the FTA or TPI reactivity of the supernatant fractions and thus it was evident that little or no syphilitic antibody was sedimented by the employed conditions of centrifugation.

Hypotheses for Nonspecific FTA Results

It is suggested that either of two hypotheses might explain these nonspecific FTA reactions. The first is based on observations of other investigators who have shown that various macroglobulins have an unusual affinity for certain types of particulate matter, and are readily adsorbed by such particles. On this basis, it is postulated that the spirochetes used as antigen in the FTA represent particles that can adsorb some of the macroglobulins that are present in high concentration in the test serum, and these in turn will specifically react with the fluorescein-conjugated antihuman gamma globulin. This obviously constitutes a false positive test for syphilis since the reaction occurs in the absence of syphilitic antibody. The other hypothesis is more complex but on the basis of available information also merits consideration. Let us first consider the history of the treponemes that serve as antigen in FTA tests. A suspension of virulent *Treponema*

Table 2. Effect of high-speed centrifugation on the serologic activity of syphilitic and macroglobulinemia sera

Serum No.	Clinical diagnosis	FTA and TPI reaction[1] with designated serum fraction					
		Unfractionated		Supernate		Sediment	
		FTA	TPI	FTA	TPI	FTA	TPI
A.C.	Rheumatoid arthritis	R	—	—	—	R	—
M.S.	Rheumatoid arthritis	R	—	Wr	—	R	—
TPS 12962–8	Syphilis	R	R	R	R	R	R
TPS 13162–4	Syphilis	R	R	R	R	R	R

[1] Reactions reported as: Reactive (R) and weakly reactive (Wr). The negative sign (—) denotes nonreactive

pallidum is inoculated into the testes of a rabbit and harvested when a firm orchitis first appears, usually 7–10 days post-inoculation. Even though the infection is of short duration, it is possible that the immune processes of the rabbit have begun to function by this time and thus treponemal antibodies will be present in the blood of the animal. Although the antibody levels presumably are relatively low at this stage of infection, it is likely that some sensitization of the treponemes will occur. Accordingly, 7 S gamma globulin will be bound to the surface of the organisms. The majority of macroglobulins with 19 S or greater sedimentation coefficients are noted for their ability to react with 7 S gamma globulins. Therefore, the high molecular weight components in sera from patients with macroglobulinemia could combine nonspecifically with the specifically-bound rabbit 7 S gamma globulin. The fluorescein-labeled antihuman gamma globulin then would react with the macroglobulins that were bridged to the spirochetes by rabbit antibody and give false FTA reactions.

Validity of FTA Test

It is of utmost importance to be cognizant of the limitations as well as advantages of any serologic test procedure and it is apparent from these studies that the incidence of false positive FTA reactions is high with sera containing elevated macroglobulin levels. Nevertheless, it should be noted that sera of this nature fortunately are encountered only occasionally, and thus do not appear to constitute a problem that seriously limits the usefulness of the FTA as a diagnostic procedure. Furthermore, the present studies showed that valid FTA results can be obtained even with macroglobulinemia sera simply by centrifuging these specimens for 1 hour at 100,000 rcf and testing the supernatant and sedimented fractions.

It is noteworthy that under diagnostic test conditions, the FTA unquestionably is a valuable adjunct to the TPI. In our experience, the practice of conducting parallel FTA and TPI tests on all sera submitted for TPI examination has improved the confidence in the validity of the serologic findings, and on occasion has prevented the reporting of erroneous TPI results. Moreover, the FTA appears to provide a highly specific and technically feasible diagnostic procedure for laboratories not having facilities for performing the TPI.

Summary

To summarize, evaluation of the FTA test has been continued, and to date more than 3,000 sera from problem diagnostic cases have been tested concurrently in the FTA and TPI procedures. Correlation of test results was obtained with 90% of the specimens examined. It was noted, however, that sera from certain nonsyphilitic patients with elevated macroglobulin levels gave false reactions in the FTA. Subsequent studies showed that the factor responsible for these overt reactions could be sedimented by centrifugation for 1 hour at 100,000 rcf, whereas similar treatment had no detectable effect on the specific antibody in syphilitic sera. Thus, nonspecific reactions due to the presence of high molecular weight globulins in the serum could be differentiated from reactions connected with homologous antibody. The usefulness of the FTA as an adjunct to the TPI in diagnostic tests, and its potential value in laboratories not having TPI facilities have been noted.

The Microhematocrit-Plasmacrit Method of Blood Donor Screening

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ABSTRACT

A significant proportion of units donated to a blood bank have been found to be unusable because of a positive test for syphilis. The Plasmacrit test was adapted to predonation donor screening.

In 1960 we began a 12-month study of the Microhematocrit-Plasmacrit (HCT–PCT) method versus the use of the copper sulfate screen test for hemoglobin and the post-donation VDRL test method. A semicircular donor screening counter was designed, seating 6–8 donors with all the needed apparatus on work spaces in the counter. A simplified hematocrit reader permitted rapid determination that the donor's red cell mass was within acceptable limits. Finally, we developed a set of standards for chyle, against a black background, and for icterus, against a white background.

The more accurate hematocrit method rejected a higher number of donors.

The HCT-PCT method provides a superior quality of donor screening and results in significant savings in operating costs. Use of this method also results in improvement in venereal disease case finding.

SOMMAIRE

Un nombre important d'unités données à une banque du sang se sont révélées inutilisables par suite d'une réaction syphilitique positive. Le test Plasmacrite a été adapté au triage préalable des donneurs.

Nous avons commencé en 1960 une étude de 12 mois de la méthode Microhématocrite-Plasmacrite comparée à l'emploi du test de triage au sulfate de cuivre pour l'hémoglobine et à la méthode d'analyse du Laboratoire de Recherches sur les Maladies Vénériennes après la prise de sang. Un comptoir en demi-cercle a été installé pour le triage des donneurs, avec des sièges pour six à huit donneurs et tout le materiel néecessaire dans les sections du comptoir. Un appareil de lecture d'hématocrite simplifié permettait de déterminer rapidement si la masse de globules rouges du donneur était dans les limites acceptables. Enfin, nous avons mis au point une série de standards pour le chyle, sur fond noir, et pour l'ictère, sur fond blanc.

La méthode hématocrite, plus précise, a éliminé un plus grand nombre de donneurs.

La méthode Microhématocrite-Plasmacrite permet un très bon triage des donneurs et a pour résultat une économie importante dans les frais de fonctionnement. L'emploi de cette méthode a également pour résultat l'amélioration du dépistage des cas de maladies vénériennes.

RESUMEN

Una proporción significante de unidades donada por un banco de sangre se encontró que no se podia usar por manifestar una prueba positiva de sifilis. La prueba Plasmacrita fué adoptada para discernir antes de la donación el tipo del donante.

En 1960 comenzamos un estudio de 12 meses del Método Microhematocrito-Plasmacrito (HCT–PCT) contra el uso de pruebas de dicernimiento de sulfato de cobre por hemoglobina y el método de la prueba de donación posterior de VDRL. Se ideó un mostrador semicircular para discernir al donante, teniendo de 6–8 donantes con todos los aparatos necesarios en los espacios para trabajar en el mostrador. Un método de hematocrito-simplificado permitió una determinación rápida de la hemoglobina del donante podia considerarse dentro de los limites aceptados. Finalmente desarrollamos un patrón de normas para quilo, contra fondo negro, y para ictero contra fondo blanco.

El método hematocrito más preciso exeluye a mayor número de donantes.

El Método HCT–PCT proporciona un discernimiento de donantes de calidad superior e infiere ahorros significativos en el costo de producción. El uso de este método tambien infiere el mejoramiento en los descubrimientos hechos en los casos de enfermedades venéreas.

THE ESSENTIAL PURPOSE of a well operated community blood bank is to provide patients with adequate amounts of the best possible units of blood for transfusion at the lowest possible cost. It becomes most important, therefore, to eliminate all possible waste by screening blood donors with methods which will best minimize the collection of unusable units. Because blood banks have, for years, relied on a donor's history and performed a serologic test for syphilis after the blood was

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drawn, a significant proportion of units found to be unusable (about 20% in our experience) have been so because of a positive test for syphilis.

Advantages of Plasmacrit Method

Therefore, in 1959, when Andujar (*1*) developed the Plasmacrit test, performed in a few minutes on a drop of finger puncture blood, we became most interested in adapting it to predonation donor screening. In the course of designing the method by which it could best be used, other advantages at once became apparent, because we could "see" what the unit of blood would look like after collection; specifically: (1) a microhematocrit reading could easily be done, and this was a far more accurate measure of the normalcy of the red cell mass than the copper sulfate screen test (*2*) commonly in use in blood banks; (2) the plasma could be observed for excess chyle and abnormal icteric color; and (3) a grossly abnormal buffy coat would also be detectable. Abnormality in these respects also made blood units unusable as a rule. Thus, ability to "see" the donor's blood added greatly to the usefulness and value of the new method. In addition, and of particular interest to this group, we were most surprised to find that this method of screening resulted, without any special effort, in an excellent venereal disease case finding tool for the health department.

Comparative Studies

Early in 1960, we began a 12-month comparative study of the Microhematocrit-Plasmacrit (HCT–PCT) method versus the use of the copper sulfate screen test for hemoglobin and the post-donation VDRL test method in our bank at El Paso. It was necessary to develop certain special equipment to permit the rapid and easy application of the new method. Since screening donors singly would be too cumbersome, a semicircular donor screening counter was designed, seating 6 to 8 donors, with all of the needed apparatus on conveniently located work spaces in the counter. A simplified microhematocrit reader (Figure 1) permitted rapid determination that the donor's red cell mass was within acceptable limits (a low HCT of either 37%—12.5 gm.% hemoglobin, or 40%—13.5 gm.% hemoglobin, and a high HCT of 60% to allow for some increase due to altitude or dehydration). And, finally, we developed a set of standards for chyle, against a black background, and for icterus, against a white background. Capillary tube standards were prepared for excessive icterus at the 10-unit level by the potassium bichromate method for the icteric index (*3*). A permanent standard for excessive chyle took a bit of searching and originality. We found, finally, that a mixture of one part of Color-Plus brand Platinum Icing nail polish and nine parts of clear polish gave us just the correct turbidity. The identity of the donor with his PCT test result and with the unit of his blood collected afterwards is maintained by stamping a three-digit "identity number" on the palm of the hand and on the donor card. This number is used throughout the screening procedure and is keyed to the donor test records. It is removed from the donor's hand when the blood unit number is assigned and the bleeding has begun.

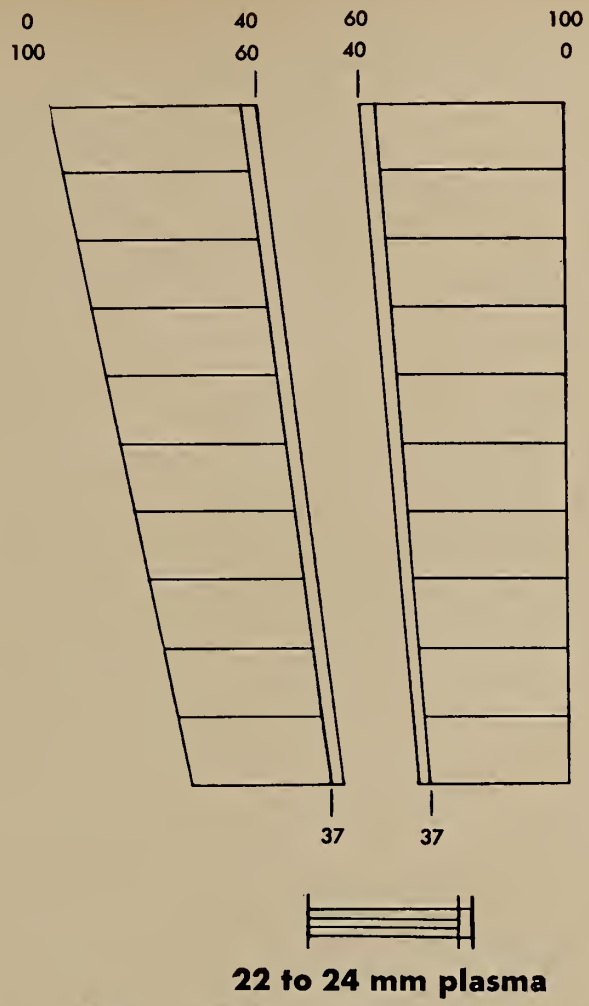

Figure 1. HCT–PCT donor screening reader

The results of the study have been reported in detail elsewhere (*4*) and it is sufficient here to review a summary of the results of the com-

Table 1. Comparison of advance donor rejects by the HCT–PCT method and the $CuSO_4$-VDRL method in screening 10,598 donors

Rejection cause	HCT–PCT technique		$CuSO_4$-VDRL technique	
	Number	Percent	Number	Percent
Low Hgb. or HCT	428	4. 0	308	2. 9
Positive serologic tests	228	2. 2	0	0
Chyle	454	4. 3	0	0
Icterus	6	. 5	0	0
Abnormal buffy coat	1	. 01	0	0
Total	1, 117	10. 56	308	2. 9

parison of the two methods, as shown in Table 1. Note that the more accurate microhematocrit rejected a higher number of donors; however, there are several factors involved and the true increase in rate is only about one-half of that shown. The positive serology rate of 2.2% shown with the use of the PCT test was found to be 1.7% with the repeat VDRL tests. After an initial period of difficulty due to capillary tube size problems, we found no positive results with the VDRL test on 5,293 bloods that were negative to the PCT test. As you will note from the 4.3% rejection rate, excessive chyle is a sizeable problem in the El Paso area. However, a great number of these donors returned later after fasting and were accepted. Icterus was a minor problem, although subsequent experience indicates that it can be much higher, with some indication that this correlates with infectious hepatitis outbreaks. The one abnormal buffy coat observed was in a young soldier who was found to have a blood dyscrasia upon subsequent examination at William Beaumont General Hospital.

We are enthusiastic about the HCT–PCT method and are now using it in all of our blood bank facilities. From our point of view, it provides a superior quality of donor screening, medically speaking, and results in a significant savings in operating costs, from an economic viewpoint. If one assumes, for illustration, that the 689 donors we would otherwise have drawn, only to reject their blood, would have represented an investment of $10.00 each, we are saving $6,890.00 a year, a cost reduction of about 7%. In addition, there were other unanticipated benefits which resulted. Hospital laboratory personnel and many clinicians complimented us on the "better and uniformly good quality" of the blood. Quite to our surprise, donors accepted rejection with better grace and understood the explanation given of the reason for rejection. More surprising, however, to those of us accustomed to the poor response of donors to letters stating the reason for rejection, mailed after the fact, was the high percentage of these donors who, now, did report to their own physician or to the health department. This they were advised to do in the case of all "abnormal" blood findings except chyle. The difference, of course, is due to the fact that the reason to seek medical aid had been carefully explained to them, on the spot, in a private, personal interview.

Improved V.D. Case Finding

The El Paso Health Department has been delighted at the resulting improvement in venereal disease case finding, and I would like to discuss some of the details briefly. As you noted, during the study period, the El Paso Bank screened about 900 donors a month, and there was an average of 20 of these with positive PCT tests. From other studies of our donor population (*5*), only about 12% of them are new or "first time" donors. This would suggest that the rate among new donors might average almost 20% in the El Paso area, since donor records are kept and known positives are rejected without screening. However, some of these people will try again under assumed identities.

During 1961 and 1962, since the close of the study period, the donor volume and the number each month with positive PCT tests has remained about the same. We have recently reviewed the program results with the Communicable Disease Control Division of the El Paso City-County Health Department and find that our efforts remain quite productive in case finding. During the first 5 months of this year, we referred approximately 100 donors to their own physicians, if they preferred, or to the Health Department because of a positive PCT test. Approximately 50 did report to the City-County Health Unit for further study. While some of these suspects were found to have false positive reactions and others returned to their home towns after reporting for the first blood test, 19 cases of syphilis were found and followed up. There were 8 of primary and secondary infectious syphilis and 3 of early latent syphilis, with complete follow up of contacts;

and 8 cases of late latent syphilis, 4 of whom had had previous adequate treatment. Among the other suspects, 8 Mexican Nationals were referred to the Federal Health Department in Juarez, Mexico, and a somewhat larger number to local Health Departments in other cities in this country. The El Paso Health Department has officially acknowledged our continued assistance and cooperation in the control of venereal disease in the area.

Summary

In summary, the use of the Microhematocrit-Plasmacrit method of predonation screening by blood banks not only results in medical and economic benefits to the blood bank, but it also has proven to be an effective venereal disease case finding tool, because of the opportunity it affords for emphasizing the need for medical follow-up through an immediate personal interview.

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Problem of the Biologic False Positive Reaction

NICHOLAS J. FIUMARA, M.D.

ABSTRACT

The Division of Venereal Diseases of the Massachusetts Department of Public Health made a study of 1,000 patients who had persistently positive blood Hinton tests and who had no historical, physical, or epidemiological evidence of syphilis, on the basis of protocols submitted by their physicians. Each of these patients represented a diagnostic problem to the private or clinic physician, and a treponemal test was indicated.

When the TPI and the Reiter Protein Complement Fixation (RPCF) tests were positive, the diagnosis of syphilis could be confirmed. When an RPCF test was negative, the physician was advised to have his patient have a TPI test. If both tests were negative, the patient could be classified as a biologic false positive (BFP) reactor, with a few reservations. The sensitivities of the TPI and the RPCF tests were compared with the sensitivity of the Hinton tests in the various stages of untreated syphilis.

On the basis of all available data, including the treponemal tests, 800 or 80.0% of the 1,000 diagnostic problem patients were found to be infected, and 200 or 20.0% were BFP reactors. Approximately 72.0% of the white and 96.6% of the nonwhite patients had syphilis.

Results of this study indicate strongly that the reagin tests are still valuable in the diagnosis of syphilis. Even when diagnostic problems arise, almost 80% of patients with a persistently positive blood reagin test have or have had syphilis. Only when both the RPCF and the TPI tests are negative can the diagnosis of biologic false positive reaction be entertained in a patient with a persistently positive reagin blood test.

SOMMAIRE

La Division des Maladies Vénériennes du Déparlement de la Santé Publique du Massachusetts a fait une étude portant sur 1.000 malades qui avaient, avec persistance, une réaction positive aux tests sanguins de Hinton, et qui, par ailleurs, ne présentaient aucune manifestation historique, physique ou épidémiologique de syphilis, en se basant sur les dossiers soumis par leurs médecins. Chacun de ces malades représentait un problème de diagnostic pour le médecin privé ou de clinique, et un test tréponèmal fut ordonné.

Quand les tests TPI (Immobilisation du treponema pallidum) et FCPR (Fixation du Complément Protéine de Reiter) étaient positifs, le diagnostic de syphilis pouvait être confirmé. Quand un test FCPR était négatif, on priait le médecin de faire passer un test TPI à son malade. Si les deux tests étaient négatifs, le malade pouvait être classéé comme ayant une réaction biologique faussement positive (BFP), avec quelques légères réserves. Les tests de sensibilisation du TPI et du FCPR furent comparés à ceux de Hinton, aux différents stades de la syphilis non traitée.

En se basant sur toutes les données dont on dispose concernant les tests du tréponème, 800, soit 80%, des 1,000 malades dont le diagnostic posait un problème, furent déclarés atteints, et 200, soit 20%, furent classés "réacteurs biologiques à fausse réaction positive." A peu près 72% des malades blancs et 96.6% des nonblancs étaient atteints de syphilis.

Les résultats de cette étude indiquent avec force que les tests par réaction sont toujours précieux dans le diagnostic de la syphilis. Même lorsque des problèmes de diagnostic surgissent, presque 80% des malades ayant un test sanguin à réaction positive persistante ont ou ont eu la syphilis. Ce n'est que quand les deux tests, FCPR et TPI, sont négatifs que le diagnostic de réaction biologique faussement positive peut être retenu chez un malade à réaction sanguine positive persistante.

RESUMEN

La División de Enfermedades Venéreas del Departamento de Salud Pública de Massachusetts realizó un estudio de 1,000 pacientes que han tenido análisis de sangre de Hinton persistentemente positivos y que no han tenido evidencia histórica pisica ó epidemológica de sífilis, á base de las hojas clínicas presentadas por sus médicos. Cada uno de estos pacientes presentaba un problema de diagnóstico al médico privado o clínico y una prueba treponemal era indicada.

Cuando las pruebas de TPI y de la Fijación del Complemento de Proteina de Reiter eran positivas, el diagnóstico de sífilis podía ser confirmado cuando una prueba de RPCF era negativa, se le aconsejaba al médico que hiciera que á su paciente se le aplicara una prueba de TPI. Si ambas pruebas eran negativas, el paciente podía ser un reactor biológico positivo falso (BFP) con algunas reservas. Las sensibilidades de las pruebas TPI y RPCF se compararon con la sensibilidad de la prueba de Hinton en las varias etapas de la sífilis sin tratamiento.

A base de todos los datos accesibles, incluyendo las pruebas treponemales 800 o 80% de los 1,000 pacientes

con problemas de diagnóstico estaban contagiados y 200 o 20% eran reactores BFP. Aproximadamente el 72% de los pacientes blancos y el 96.6% de los no blancos tenían sífilis.

Los resultados de este estudio indican firmemente que las pruebas de reagentes son todavía válidas en el diagnóstico de la sífilis. Aún cuando los problemas de diagnóstico se presentan, casi el 80% de los pacientes con un análisis persisténtemente positivo de reagente sanguíneo tienen ó han tenido sífilis. Solo cuando ambas pruebas, la RPCF y la TPI son negativas puede el diagnóstico de la reacción biológica positiva falsa ser concebida en un paciente con una prueba persistentemente positiva de reagente sanguíneo.

ONCE UPON A time the physician was hard put to distinguish between the true positive blood test for syphilis and the biologic false positive reaction. Only time and exhaustive clinical and epidemiologic studies made a disposition of infection or no infection possible. There was rejoicing when the physician could happily proclaim that the patient had a biologic false positive reaction and not syphilis.

Time and the introduction of the treponemal tests have made it possible to diagnose quickly, and within limits quite accurately, whether or not a patient with a reactive reagin test has syphilis.

Time and the recent advances in the nature of the autoimmunologic diseases has jolted us into realizing that reagin antibodies appearing without apparent cause may be the harbinger of an autoimmune disease (*1*), such as systemic lupus erythematosus (*2*) rheumatoid arthritis, hemolytic anemia and others. The joy of yesteryear over a diagnosis of biologic false positive reaction has changed today to a cautious pessimism. One cannot help but philosophize, "It were better had they had syphilis."

Since the diagnosis of syphilis or biologic false positive reaction begins with a reactive reagin test, a review of these tests is in order.

Standard blood tests for syphilis are designed to detect the presence or absence of reagin in a patient. The antigen used is an alcohol-soluble lipid obtained from beef heart which reacts with reagin in the presence of lecithin and cholesterol. Reagin is found in the globulin fraction of the blood and spinal fluid. Since the antigen is neither the *Treponema pallidum* nor a fraction of it, a positive blood test in itself is not absolutely specific for syphilis. Furthermore, the reagin found in response to a syphilitic infection cannot as yet be distinguished from reagin elaborated, for example, by infectious mononucleosis in a biologic false positive reaction. Therefore, while a positive blood test is presumptive evidence of syphilis, it is not by itself diagnostic of it.

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The two types of test in common use are the complement fixation and the flocculation tests. The complement fixation test depends on the ability of reagin to fix complement in the presence of cardiolipin-lecithin antigen and thus prevent the hemolysis of sheep red blood cells. An example of this type of test is the Kolmer-Wassermann.

The flocculation tests are more popular than the complement fixation type because they are less expensive and easier to perform, and because the results are comparable to those of the more cumbersome complement fixation tests. Flocculation tests depend on the formation of grossly visible particles when cardiolipin antigen is mixed with serum. The diagnosis of early or late symptomatic syphilis presents little or no difficulty to the practicing physician. It is the patient who happens to have a positive blood test for syphilis without detectable lesions who taxes his diagnostic acumen. Yet, even in this situation, the physician can, as a rule, establish or rule out infection with syphilis within four office or clinic visits on the basis of his clinical and epidemiologic examinations, supplemented by the judicious use of the treponemal tests (*3*).

The era of the treponemal tests began in 1949 with the introduction of the Treponema Pallidum Immobilization (TPI) test by Nelson and Mayer (*4*). The TPI test was followed in 1955 by the Treponema Pallidum Complement Fixation (TPCF) test, developed by the Public Health Service (*5*).

The TPCF test has been almost entirely replaced by the Reiter Protein Complement Fixation (RPCF) test established in 1957 (*6*, *7*, *8*). This test employs the protein fraction of the nonpathogenic strain of *Treponema pallidum*, originally described by D'Alessandro and his co-workers in 1949. Since the Kolmer technique is used in the RPCF test, the procedure is also referred to as the Kolmer-Reiter Protein Complement Fixation test (KRPCF). The newest treponemal test, the Fluorescein Tagged Antibody (FTA) test, is being used more and more but as yet has not replaced entirely the more expensive and more difficult TPI test.

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The physician is concerned primarily with determining whether a patient with a positive blood reagin test does or does not have syphilis. For this reason, he must know the limitations of the treponemal tests. These limitations can best be described by comparing the sensitivity of these tests in the various stages of untreated syphilis with the sensitivity of the Hinton test, which is used in Massachusetts.

The RPCF test is more sensitive than the TPI test in early syphilis, where we don't particularly need a high degree of sensitivity, and less sensitive in latent and late syphilis, where we do want and need a more sensitive test. Thus, in primary syphilis, while the Hinton test is positive in 70% of the cases, the RPCF test has a sensitivity of 65%, the TPI only 50%. In secondary syphilis, the Hinton test is always positive, but the RPCF test is positive in only 98% of cases, and the TPI test in 95%. In latent syphilis, the Hinton test is of necessity positive in all cases. The TPI test is practically always positive, too, but the RPCF is positive in only 95% of the cases. In late syphilis, the Hinton test is positive in 75% of the cases, the RPCF test in 85%, and the TPI in 98% (*11*).

This report covers an analysis of 1,000 positive Hinton reactors who had no historical, physical, or epidemiologic evidence of syphilis. Excluded from this study were: (a) those patients who had clinical evidence of syphilis; (b) patients who had epidemiologic evidence of syphilis, such as a spouse or a sibling with a positive blood test for syphilis; (c) patients who had a positive spinal fluid serology. Each patient in this study had two or more blood reagin tests performed which were positive and each was screened to detect evidence of any disease or immunization which might have caused a biologic false positive reaction.

Thus, the study group is composed entirely of patients with persistently positive blood Hinton tests whose physician could not decide whether or not they had syphilis.

Of the 1,000 cases studied, 219 (21.9%) were patients of private physicians and 781 (78.1%) were from clinics and hospitals. There were 676 (67.6%) white patients and 324 (32.4%) nonwhite. There were 435 (43.5%) males, and of these, 320 (73.6%) were white and 115 (26.4%) nonwhite. Females numbered 565 (56.5%) and of these 356 (63.0%) were white and 209 (37.0%) nonwhite. As regards marital status, 247 (24.7%) patients were single, 509 (50.9%) were married, 118 (11.8%) were widowed, 74 (7.4%) were separated, and 52 (5.2%) were divorced.

Infection Rates

On the basis of a positive treponemal test, either the TPI or RPCF test, or both, 800 (80.0%) of the 1,000 patients were infected, whereas 200 (20.0%) were not infected, but had a biologic false positive reaction. The detailed data on infection are given in Table 1.

Table 1. Syphilitic infection in 1,000 diagnostic patients with reactive Hinton tests (Massachusetts, 1954–61)

Classification	Total reactors	Infected	
		Number	Percent
Total	1,000	800	80.0
Clinic or private:			
Clinic	781	666	85.3
White	471	365	77.5
Nonwhite	310	301	97.1
Private	219	134	61.2
White	205	122	59.5
Nonwhite	14	12	85.7
Race:			
White	676	487	72.0
Male	320	254	79.4
Female	356	233	65.4
Nonwhite	324	313	96.6
Male	115	109	94.8
Female	209	204	97.6
Sex:			
Male	435	363	83.4
Female	565	437	77.3
Marital status:			
Single	247	176	71.3
Male	137	111	81.0
Female	110	65	59.1
Married	509	399	78.4
Male	233	191	82.0
Female	276	208	75.4
Widowed	118	106	89.8
Male	31	28	90.3
Female	87	78	89.7
Separated	74	72	97.3
Male	24	23	95.8
Female	50	49	98.0
Divorced	52	47	90.4
Male	10	10	100.0
Female	42	37	88.1

Clinic patients were infected more frequently (85.3%) than private patients (61.2%). Nonwhite patients had syphilis more often (96.6%) than white patients (72.0%) irrespective of whether they were clinic patients or patients of private physicians. Furthermore, the infection rate in nonwhites of both sexes was higher than in white persons. But the infection rate was

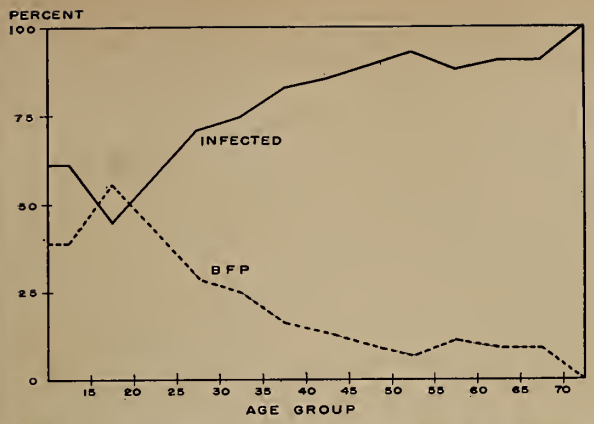

Figure 1. Diagnosis obtained from 1,000 treponemal testings, by age distribution. (Massachusetts 1954–61)

about the same in males and females of the same race.

When the 1,000 patients were studied by 5-year age groups, an interesting pattern was seen. With the exception of the group aged 15–19 years, the infection rate increased with age up to about 50 years, when it tended to level off (Figure 1). This pattern was seen in both private and clinic patients (Figure 2) and in white patients.

The infection rate in both males and females followed the general trend of increasing infection with age, but with a sharp increase in the BFP rate in the 15 to 19 year group.

In general, the rate of infection was highest in the larger cities, even among patients of private physicians, and to a lesser extent, among clinic patients (Table 2).

Boston, the largest city in the State, had the highest infection rate (86%).

When the data were analyzed according to individual referring hospitals, the infection rate among the 1,000 diagnostic problem cases generally reflected the prevalence of syphilis in the population group from which the patients came (Table 3). In hospitals drawing their patients from areas with a high syphilis prevalence, Boston City Hospital and Massachusetts Memorial Hospitals, for example, these diagnostic problem patients showed a higher infection rate than patients in hospitals in areas of lower syphilis prevalence.

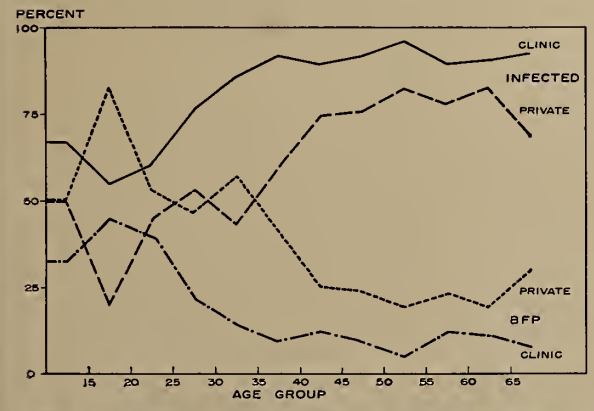

Figure 2. Diagnosis obtained from 1,000 treponemal testings, by age distribution of clinic and private patients. (Massachusetts 1954–61)

Lastly, an attempt was made to correlate the highest dilution positive Hinton test with the diagnosis of biologic false positive reactor. The highest dilution positive titer recorded was 1:16, and this in one case only (Figure 3). In general, BFP reactors have low titer serologic tests, although exceptions to this have been seen by almost all physicians. But among these 200 BFP reactors, only 1 patient had a positive Hinton test at a dilution of 1:16; none in more diluted serum.

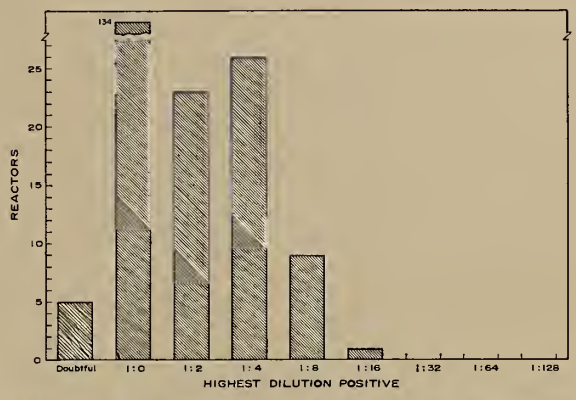

Figure 3. Biologic false positive reactors, highest dilution Hinton positive. (Massachusetts 1954–61)

Summary

The Division of Venereal Diseases of the Massachusetts Department of Public Health made a study of 1,000 patients who had persistently positive blood Hinton tests and who had no historical, physical, or epidemiological evidence of syphilis, on the basis of protocols submitted by their physicians. Each of these patients represented a diagnostic problem to the private or clinic physician, and a treponemal test was indicated.

When the Treponema Pallidum Immobilization (TPI) and the Reiter Protein Complement Fixation (RPCF) tests were positive, the diagnosis of syphilis could be confirmed. When an RPCF test was negative, the physician was advised to have his patient have a TPI test. If both tests were negative, the patient could be classified as a biologic false positive (BFP) re-

Table 2. Syphilitic infection in 1,000 diagnostic problem patients with reactive Hinton tests (Massachusetts, 1954–61) by type of patient and community size

Community size	Cases		Private				Clinic				Total			
	Number	Percent	Infected		BFP		Infected		BFP		Infected		BFP	
			Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Boston	571	57	43	64	24	36	449	89	55	11	492	86	79	14
Over 100,000	31	3	8	67	4	33	17	89	2	11	25	81	6	19
50,000–99,999	157	16	34	68	16	32	83	78	24	22	117	75	40	25
All other	241	24	49	54	41	46	117	77	34	23	166	69	75	31
Total	1,000	100	134	61	85	39	666	85	115	15	800	80	200	20

Table 3. Syphilitic infection in 1,000 diagnostic problem patients with reactive Hinton tests (Massachusetts, 1954–61) by referring hospitals

Source of request	Total	Infected		Biologic false positive	
		Number	Percent	Number	Percent
Total	1,000	800	80.0	200	20.0
Voluntary hospitals	759	649	85.5	110	14.5
Beth Israel	16	11	68.8	5	31.2
Boston City	152	142	93.4	10	6.6
Boston Dispensary	35	26	74.3	9	25.7
Massachusetts General	284	239	84.2	45	15.8
Massachusetts Memorial	175	163	93.1	12	6.9
Peter Bent Brigham	33	22	66.7	11	33.3
All other	64	46	71.9	18	28.1
State hospitals	22	17	77.3	5	22.7
Private physician	219	134	61.2	85	38.8

actor, with a few reservations. The sensitivities of the TPI and the RPCF tests were compared with the sensitivity of the Hinton tests in the various stages of untreated syphilis.

On the basis of all available data, including the treponemal tests, 800 or 80.0% of the 1,000 diagnostic problem patients were found to be infected, and 200 or 20.0% were BFP reactors. Approximately 72.0% of the white and 96.6% of the nonwhite patients had syphilis. The infection rate was about 85.3% in clinic patients, and 61.2% in private patients. More cases of syphilis were discovered in both men and women who were married or who had been married than in single persons.

More syphilis was found in the larger cities, and the highest rate was in Boston, the largest city in the study area. Areas in Boston and elsewhere in the State which have a higher syphilis prevalence also showed a higher infection rate among these diagnostic problem cases. This was reflected in the number of syphilis cases in the hospitals drawing their patients from these areas.

When the 200 patients with BFP reactions were studied to correlate their highest dilution serologic titers with their diagnoses, it was found that only 1 had a positive dilution titer of 1:16; all others had lower positive titers. This coincides with the experience of physicians that, generally speaking, patients with BFP reactions have low-titer serologic titers. Many exceptions can be found, however.

Results of this study indicate strongly that the reagin tests are still valuable in the diagnosis of syphilis. Even when diagnostic problems arise, almost 80% of patients with a persistently positive blood reagin test have or have had syphilis. For this reason, such patients must be considered to be syphilitic until proved otherwise. Today, a diagnosis of BFP should not be made in Massachusetts without the benefit of the RPCF test as a screening device, and if this test is negative, the TPI test should be performed. Only when both treponemal tests are negative can the diagnosis of biologic false positive reaction be entertained in a patient with a persistently positive reagin blood test.

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Nature and Control of False Positive Reactions in the Fluorescent Treponemal Antibody Test

ELIZABETH F. HUNTER

ABSTRACT

In the Fluorescent Treponemal Antibody (FTA) test, problems of increased sensitivity resulting in unexplaincd nonspecific reaction obtained in normal serums prompted modification from a 1:5 to a 1:200 serum dilution. This tended to alleviate the problem of increased sensitivity, but did not alter the basic question of the nature of rcactions occurring in normal serum. Inquiries into the antibodies produced by related trepoucmes were made.

It was found that the Reiter treponeme shared an antigen component with other treponemes, and absorption experiments revealed that the shared antigen component was nonspecific in nature and similar or identical to the agents opcrating in normal serums. It was attempted to apply this information to produce increascd sensitivity and specificity in the FTA test.

FTA tests were performed on normal and primary untreated syphilis serums, and two methods were used to establish the type of antibody causing reactivity: the absorption method, consisting of using intact Reiter treponemes to remove antibody from the test serum; and the blocking technique, making use of rabbit Reiter treponeme antibody for binding or inactivation of T. pallidum common antigen receptor sites.

Absorption and blocking techniques removal of nonspecific reactivity from the original 1:5 FTA test establishes this non-specific reactivity to be due to related treponemal antibodies. These techniques offcr identification and control in this new era of biological false positives, resulting in a high degree of sensitivity without loss of specificity.

SOMMAIRE

Dans le test de l'anticorps fluorescent du tréponème (AFT), on s'est heurté à des problèmcs de sensibilité accrue dans des sérums normaux, ayant pour résultat une réaction non spécifique inexpliquée; on a ainsi été amené à modifier du 1:5 au 1:200 la dilution du sérum. Si le problème de la sensibilité accrue a eu tendance à s'atténuer, la question fondamentale de la nature des réactions se produisant dans le sérum normal est restée la même. On a douc fait des recherches sur les anticorps produits par des tréponèmcs apparentés.

On a découvert que le tréponème de Reitcr partageait un composant antigène avec d'autres tréponèmes, et des expériences d'absorption ont révélé que ce composant antigène commun était de nature non spécifique, et semblable ou identique aux agents entrant en jeu dans les sérums normaux. On a essayé d'appliquer cette connaissance à la production d'une sensibilité et d'une spécificité accrues dans le test AFT.

On a effectué dcs tests AFT sur des sérums normaux et sur des sérums syphilitiques primaires non traités, en employant deux méthodcs pour déterminer le type d'anticorps responsable dc la réactivité: la méthode d'absorption, qui consiste à employer des tréponèmes de Reiter intacts pour déplacer l'anticorps du sérum utilisé, et la technique de blocage, qui cmploie l'anticorps du tréponèmc de Reiter du lapin pour fixcr et inactiver les sites réceptcurs de l'antigène commun du Treponema pallidum.

La suppression des méthodes d'absorption et de blocage de la réactivité non-spécifique, rencontrée dans le premier Test AFT prouve que cette réactivité nonspécifique est propre aux anticorps du tréponème, dont il s'agit. Ces méthodes permettent d'identification et l'élimination, dans cettc ère nouvelle, des fausses réactions biologiques positives, avec comme résultat, un degré élevé de sensibilité sans perte de spécificité.

RESUMEN

En la Prueba de Anticuerpos Fluorescentcs Treponemales (AFT) los problemas de aumento en la sensibilidad resultante en reacciones no explicables ni especificas obtenidas con sueros normales nos llcvaron a la modificación de 1:5 a 1:200 en la dilución del suero. Esto tendió a aliviar el problema del aumento de la sensibilidad per no cambió el problema básico de la naturaleza de las reacciones que ocurren en los sueros normales. Investigaciones fueron realizadas en los anticuerpos producidos por diferentes treponemas que se relacionan.

Se descubrió que el treponema Reiter tiene en común un componente antigeno con otros treponemas, y los experimentos de absorción revelaron que el componente antigeno era no especifico en naturaleza y similar o idéntico a los agentes quc operan en sueros normales. Se trató de aplicar esta información para producir aumento de sensibilidad y especificidad en las pruebas FTA.

Las pruebas de FTA se realizaron en sueros normales y en sífilis primaria sin haber recibido tratamiento alguno y se utilizaron dos métodos para establecer el tipo del anticuerpo que causa la reactividad; el método de absorción que consiste en usar treponemas Reiter

intactos para separar el anticuerpo del suero de la prueba; y la técnica de bloqueo que utiliza al anticuerpo del treponema del conejo Reiter, para unir o inactivar los lugares del receptor del antígeno común del T. pallidum.

Las técnicas de eliminación de bloqueo y absorción de la reactividad no específica de las pruebas originales de FTA 1:5 establecen que esta reactividad no específica esté relacionada con los anticuerpos treponemales. Estas técnicas ofrecen identificación y control en esta nueva área biológica de positivos falsos, dando resultado a un grado alto de sensibilidad sin pérdida de especificidad.

SINCE THE INTRODUCTION of the Treponema Pallidum Immobilization or TPI test for syphilis by Nelson and Mayer in 1949, several promising treponemal test procedures have been described. One of these was the Fluorescent Treponemal Antibody test, hereafter referred to as the FTA test, described by Deacon and coworkers in 1957. It consisted of using a 1:5 dilution of test serum on *Treponema pallidum*, followed by a fluorescein-labeled antihuman globulin as a treponemal antibody detector system. Problems of increased sensitivity resulting in unexplained nonspecific reactions being obtained in "Normal" serums later resulted in a modification of the FTA test from a 1:5 to a 1:200 dilution of test serum. This expediency while tending to alleviate the problem of increased sensitivity did not alter the basic question concerning the nature of the reactions occurring in normal serum. Could antibodies to related treponemes be detected by fluorescent antibody methods, or were these false positive reactions due to unknown biological factors? Inquiry into the antibodies produced by related treponemes was undertaken.

In the course of these studies, it was found that the Reiter treponeme possessed a shared antigen component with *Treponema pallidum*, *Treponema microdentium*, and *Treponema zuelzerae*, a free-living mud treponeme recently isolated by Dr. H. Veldkamp. By means of absorption experiments, the shared antigen component possessed by the Reiter treponeme and other treponemes in the study was shown to be nonspecific in nature and similar or identical to the agents operating in "Normal" serums.

In the studies to be discussed, an attempt has been made to apply this information in such a way that an increase in both sensitivity and specificity of the FTA test will result. Findings are related to the more conventional procedures for comparative purposes.

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Materials and Methods

Materials and methods used in the investigation were as follows: "Normal" and "Primary Untreated Syphilis" serums were obtained from the Serum Bank of the Venereal Disease Research Laboratory. All were frozen samples of specimens which had been tested in the well-known Serology Evaluation Research Assembly or SERA Study. No attempt was made to select particular serums. "Primary Syphilis" was selected as a study category because of documentation and low antibody content that can be useful as an index of sensitivity and specificity.

FTA tests were performed using a test serum dilution of 1:5. All serums demonstrating reactivity were titered to determine an endpoint. Two methods were used to establish the type of antibody causing reactivity.

Absorption Method

The first, the absorption method, consists of using intact Reiter treponemes to remove antibody from the test serum. The Reiter treponemes are grown in NIH thioglycollate broth with 10% rabbit serum for 48 hours. Treponemes are collected by centrifugation and washed three times in buffered saline. The washed treponemes are adjusted to 40 times a MacFarland No. 10 density and the suspension used as a diluent for preparation of the 1:5 serum dilution. Simultaneously, 1:5 dilutions of serums are made in buffered saline for control. Test dilutions and controls are incubated two hours at 37° C. with rotation. Reiter treponemes are removed from test dilutions by centrifugation. Test serums and controls are heated at 56° C. for 30 minutes before being examined again with the 1:5 FTA test procedure.

Blocking Technique

The second method, designated as the blocking technique, makes use of rabbit Reiter treponeme antibody for binding or inactivation of *T. pallidum* common antigen receptor sites. Briefly, the method consists of exposing *T. pallidum* smears to Reiter antibody for 15 minutes at 37° C. before exposure to 1:5 test

Table 1. Comparison of FTA methods

Tests	Sensitivity based on 76 "primary" syphilis serums (percent reactive)	Specificity based on 76 "presumed normal" serums (percent nonreactive)
FTA, 1–5	100. 0	80. 2
FTA, absorption	80. 7	100. 0
FTA, blocking	76. 3	100. 0

serum. Sufficient rabbit serum is left on the slide to neutralize the normal rabbit antigen-human antibody system. Following this treatment, test serums are allowed to contact *T. pallidum* smears for 15 minutes as before. Fluorescein-labeled anti-human conjugate, diluted in 1:10 normal rabbit serum, is used as the reaction indicator system. In this case, the reaction is prolonged to 30 minutes.

Microscopic examinations were made using Leitz equipment with the HBO–200 bulb. The filter system consisted of a BG–12, 4 mm. exciting filter and an OG–1 eyepiece filter.

Test Findings

In evaluating test findings, the identification of each serum and previous testings were obtained. As previously mentioned, all of the serums used had been selected at random from serums obtained for the SERA Study in 1956–57. Fluorescent antibody results using a 1:5 dilution of test serum are shown in Table 1.

Comparison of FTA Methods

Sensitivity is considered as the ability to be reactive in the presence of syphilis. Specificity on the other hand refers to nonreactivity in the absence of syphilis.

As illustrated in this table, the FTA 1:5 test serum dilution without manipulation obtained 100% sensitivity using "Primary Syphilis" serums. As expected, however, only 80.2% of the normal serums were found to be nonreactive. By comparison, the FTA absorption procedure demonstrated almost complete reversal in this respect with 80.7% sensitivity and 100% specificity. Since absorption with the Reiter treponeme removed reactivity in approximately 20% of the "Primary" and "Normal" serums, it would appear that these reactions in the original FTA test are treponemal in nature and unrelated to syphilis. Results of the blocking procedure are very similar to those obtained by absorption. Disagreements where noted are probably technical in nature and are being further investigated to determine the method of choice.

Comparison of FTA Absorption and Other Tests

For comparative purposes, FTA absorption, the FTA–200 test and the results of previous testings on the same serums by representative tests performed by the Venereal Disease Research Laboratory at the time of the Serology Evaluation were tabulated. These include the TPI test with 200 units of complement, the Kolmer test with Reiter Protein Antigen and the VDRL Slide Flocculation test. Comparisons of test results are shown in Table 2.

The FTA absorption procedure demonstrates a marked increase in sensitivity over all procedures compared. Specificity on the other hand was not affected by the increased sensitivity as the test was 100% specific in the "Presumed Normal" group. The FTA–200 and the TPI–200 are low in sensitivity. This finding would be expected in evaluating "Primary Syphilis" with either of these tests.

Although the TPI–200 and the FTA–200 are identical in sensitivity, they agreed on only 19 of the 28 serums reactive. Each were reactive nine times along with reactivity in one or more of the other test procedures. The VDRL Slide test which is more commonly used in testing "Primary Syphilis" serums had a sensitivity of 67.1%. The Reiter protein test obtained 63.2% sensitivity. All tests showed 100% specificity.

Summary

In summary, well-documented "Primary Untreated Syphilis" serums and "Normal" serums have been examined by FTA methods.

Table 2. Comparison of FTA absorption and other test procedures

Tests	Sensitivity based on 76 "primary" syphilis serums (percent reactive)	Specificity based on 76 "presumed normal" serums (percent nonreactive)
FTA, absorption	80. 7	100
FTA–200	36. 8	100
TPI–200 [1]	36. 8	100
Kolmer with Reiter Protein Antigen [1]	63. 2	100
VDRL–Slide [1]	67. 1	100

[1] Performed by the Venereal Disease Research Laboratory in 1956–57.

The absorption and blocking techniques obtained a high degree of sensitivity without loss of specificity. The fact that nonspecific reactivity in the original FTA test could be removed by absorption and blocking establishes reactivity as related treponemal antibody and offers identification and control in this new era of biological false positives.

False Positive Reactions in Treponemal Tests

ALFREDO J. JULIAN

ABSTRACT

As normal rabbit testicular homogenates are likely to be contaminated with rabbit tissue components which may affect the reactivity of prepared treponemal antigens, immunization of various animals with homogenates was accordingly studied with TPI and FTA tests. Only goats produced antibodies with the former, and only goats and chickens with agglutinating tests.

Experiments, also described, and which included FTA tests also, were made with human serum on whether immobilization reactions might in some cases be mediated by antigen-antibody reaction similar to that observed with goat antisera. But absorption of these serums with homogenates did not affect their reactivity in the TPI and FTA tests.

The results of this study still, for reasons given, do not exclude the possibility that false positive reactions may occur in treponemal tests.

SOMMAIRE

Les homogénats testiculaires de lapins normaux ont des chances d'être contaminés par des éléments tissulaires de lapins qui peuvent affecter la réactivité des préparations d'antigènes tréponémiques. On a donc effectué des tests TPI et AFT pour étudier l'immunisation de divers animaux par les homogénats. Seules les chèvres ont produit des anticorps avec les premiers, et les chèvres et les poulets avec les tests d'agglutination.

On a procédé à des expériences également décrites sur sérum humain, comprenant aussi des tests AFT, pour savoir si des réactions d'immobilisation pourraient dans certains cas être amenées par une réaction antigène-anticorps semblable à celle qu'on observe avec les antisérums de chèvres. Mais l'absorption de ces sérums avec des homogénats n'a pas affecté leur réactivité dans les tests TPI et AFT.

Toutefois, pour les raisons que nous avons expliquées, les résultats de notre étude n'excluent pas la possibilité que des réactions positives fausses se produisent dans les tests tréponémiques.

RESUMEN

De la misma manera que los extractos homogenizados de testículos conejo normal tienen la probabilidad de contaminarse con los componentes del tejido del conejo, que pueden afectar la reactividad de antigenos treponemales ya preparados, la inmunización de varios animales con los extractos homogenizados fué estudiado de esa manera con las pruebas de TPI y FTA. Solamente los chivos produjeron anticuerpos con los ultimos y solamente los chivos y los pollos con las pruebas de aglutinamiento.

Experimentos también descritos y que incluyen las pruebas de FTA, fueron hechos con sueros humanos para probar si las reacciones de inmovilización pueden en algunos casos ser producidas por la reacción del antigeno-anticuerpo semejante a la observada con los antisueros de chivos. Pero la absorción de estos sueros con los extractos homogenizados no afectan su reactividad en las pruebas TPI y FTA.

El resultado de este estudio todavía, por las razones expuestas, no excluye la posibilidad que reacciones falsas positivas puedan ocurrir en las pruebas treponemales.

TREPONEMA PALLIDUM antigens, for use in a variety of tests, are obtained from rabbits infected intratesticularly with virulent organisms. It is likely that the treponemes or extracts prepared from them are contaminated with rabbit tissue components. The influence of these tissue substances on the reactivity of prepared treponemal antigens, particularly in tests with human serums, has not been adequately studied.

This report describes the production of immobilizing antibodies against *T. pallidum* in goats injected with normal rabbit testicular homogenates. The relationship of these findings to the detection of treponemal antibodies in humans is discussed.

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Materials and Methods

Goats, chickens, rabbits, and guinea pigs were immunized by repeated injection of normal rabbit testicular homogenates.

The serologic response of the animals was determined with the Treponema Pallidum Immobilization (TPI) test (*1*, *2*) and agglutination tests, using normal testicular homogenates and stored TPI test antigen.

Human specimens were tested before and after absorption with normal testicular homogenates in TPI and Fluorescent Treponemal Antibody (FTA) (*1*, *3*) tests.

Results and Discussion

Serologic Response of Animals Immunized with Normal Testicular Homogenates

The serologic response of animals immunized with normal testicular homogenates is presented in Table 1.

Production of immobilizing antibodies. In a previous study by Nielsen and Metzger (*4*) no immobilizing antibody was demonstrated in serums obtained from rabbits immunized against a variety of bacteria and viruses. In the present study, all three goats injected with normal testicular homogenates produced immobilizing antibodies as measured by the TPI test approximately 3–4 weeks following the first injection. Titers, expressed in terms of the highest dilution giving more than 50% immobilization, were relatively low, ranging from 1:1 to 1:8. However, one of the goats, after intensive immunization over a period of four months, attained a titer of 1:64. Absorption of the immune serum with normal testicular homogenates rendered it nonreactive. None of the chickens, rabbits or guinea pigs showed the presence of immobilizing antibodies when injected with the testicular homogenates.

Table 1. Serologic reactivity of immunized animals

Animal species	Number animals	Presence (+) or Absence (0) of antibodies as measured by—		
		TPI Test	NTH Agg.	TP Agg.
Goat	3	+	+	+
Chickens	6	0	+	+
Rabbit	4	0	[1]	N.D.
Guinea pig	6	0	0	N.D.

Key:
TPI = Treponema Pallidum Immobilization Test.
NTH Agg. = Normal testicular homogenate agglutinates.
TP Agg. = Agglutination of TPI Test antigen suspension.
N.D. = Not done.

[1] See text of paper.

The failure to demonstrate immobilizing antibodies in the chicken antisera, which showed intense clumping of testicular homogenates and treponemes in the agglutination tests described below, was probably related to the general failure of certain avian sera, including chickens, to fix guinea pig complement (*5*).

It has been shown that immobilization of *Treponema pallidum* is a complement dependent reaction (*2*). No attempt was made to detect immobilizing antibodies in an indirect complement-fixation test (*5*).

Production of agglutinins. Using a slide agglutination technique, clumping of normal testicular homogenates was obtained with immune chicken and goat antiserums, and it was most intense with the chicken antiserums. Both preimmune and immune rabbit serums showed the same intensity of clumping. No agglutination was noted with immunized guinea pigs.

Agglutinating antibodies were also detected with immune goat and chicken serums employing suspension of organisms as obtained for the TPI test, but stored overnight before use. These reactions were characterized by the clumping of the tissue components and treponemes, and were abolished by absorption or heating at 56° C.

Relationship of False Positive Reactions in the TPI Test with Goat Antisera to the Specificity of the TPI Test with Human Serum

The demonstration of immobilizing antibodies in goats immunized with normal testicular homogenates suggested that suspensions of treponemes as employed in the TPI test regularly contain adsorbed testes components, and that the interaction of these components with suitable antibody and complement could produce immobilization. Human serum specimens from clinically documented cases obtained from a serum bank established at the Venereal Disease Research Laboratory for the purpose of evaluating serologic tests, were selected to determine whether immobilization reactions might in some instances be mediated by antigen-antibody interaction similar to that observed with goat antisera. Because of the increasing use of the FTA test (*3*) and the similarity of the FTA antigen to that employed in the TPI test, it was considered appropriate to investigate this reaction as well. Twenty-three specimens from patients diagnosed as biologic false positive on the basis of history, but who gave reactive immobilization results, were tested before and after absorption with normal testicular homogenates. No evidence of removal of

antibody by such absorption was obtained. Similar treatment of several serums from patients with syphilis, yaws, and pinta likewise showed no change.

Repetition of this type of experiment using 10 specimens from hospital patients with a variety of diseases, and in whom there was no clinical evidence of syphilis, likewise did not show any effect even when three cycles of absorption were used. In view of the demonstration by Muschel and co-workers (*6*) of complement fixing tissue antibodies against rabbit liver homogenates in 74% of normal humans, and the development of enhanced levels of these antibodies in patients with systemic lupus erythematosus and syphilis, the failure to demonstrate immobilization or fluorescence of *Treponema pallidum* mediated by testicular antigen and human antibody was somewhat surprising. On the other hand, the specificity of the TPI test would not be as high as has been reported (*7*) if the tissue antibodies referred to by Muschel were operative in immobilization. The failure to obtain evidence of false positive reactions in treponemal tests in this study does not discount the possibility that such reactions might occur.

Summary

Immobilizing antibodies against *Treponema pallidum* were produced in goats immunized with normal rabbit testicular homogenates.

Absorption of human serums with normal rabbit testicular homogenates did not affect their reactivity in the TPI and FTA tests.

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The Antigenic Structure of *Treponema Pallidum*

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ABSTRACT

The Institute has established that this structure is an assembly of different antigens: type- and group-specific, and ubiquitous.

On antigenic location in the treponeme, the Institute has contributed evidence—described—for the capsule theory, in comparative tests with Reiter's treponeme, using also electron micrographs.

It is believed (for reasons cited) that the polysaccharide antigen, the component which determines the immunological specificity of a lipopolysaccharide complex, which is type-specific, is responsible for the immobilizing and treponemicidal reaction of Reiter's treponeme. It is suggested that a polysaccharide antigen could be implicated also in the immobilization reaction of Treponema pallidum, and that attention must thus be focussed on this. The Institute is continuing study along this line.

SOMMAIRE

L'Institut a acquis la certitude que cette structure est un ensemble de différentes antigènes: les antigènes spécifiques pour le type, pour le groupe, et omniprésents.

Au sujet de la localisation des antigènes chez le tréponème, l'Institut a fourni des preuves (décrites ici) à l'appui de la théorie de la capsule obtenues dans des tests comparés avec le tréponème de Reiter, employant également les micrographes électroniques.

On croit (pour les raisons citées ici) que l'antigène polysaccharide, le composant qui détermine la spécificité immunologique d'un complexe lipopolysaccharide spécifique pour le type, est responsable de la réaction immobilisante et tréponémicide du tréponème de Reiter. On a émis l'opinion qu'un antigène polysaccharide pourrait être également impliqué dans la réaction d'immobilisation du Treponema pallidum, sur lequel l'attention doit donc se concentrer. L'Institut poursuit ses recherches dans cette direction.

RESUMEN

El Instituto ha establecido que esta estructura es una fusión de antigenos diferentes: tipos—grupo, especifico y ubicuo.

Acerca de la localización antigena del treponema, el Instituto ha presentado evidencia—descrita—para la teoria de la cápsula, en pruebas comparativas con el treponema del Reiter, usando los micrográficos de electrones.

Se cree (por razones ya citadas) que el antigeno de polisacarid el componente que determina la especificidad inmunologica del complejo lipopolosacaride, que es de tipo especifico, y el responsable por la reacción positiva Treponema de Reiter. Se ha sugerido que el antigeno polisacaride también puede ser implicado en la reacción de inmovilización de Treponema pallidum, y que la atención debe ser enfocada en esto. El Instituto continuó los estudios sobre este problema.

TREPONEMA PALLIDUM must be considered a mosaic of different antigens, which give rise, during the course of the infection, to distinct antibodies. This situation is analogous to that occurring in other infections caused by microorganisms having a complex antigenic structure. It is therefore the task of syphilis serology to detect and measure the antibodies elicited by the various treponemal antigens, especially those which an increasing experience indicates as being the most significant from the clinical and epidemiological view-point.

Studies on the antigenic structure of treponemes which have been done in our laboratory have established that in Reiter's treponeme (non-pathogenic culturable strain) there are three principal antigens: protein, lipid and polysaccharide (D'Alessandro *et al.*, 1949). On the basis of these findings and the studies they have given rise to, the antigens of *Treponema pallidum* can be described as follows:

Type-specific antigens, present only in *Treponema pallidum* and other pathogenic treponemes.

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Group-specific antigens, common to the above-mentioned pathogenic treponemes and to non-pathogenic, culturable treponemes (Reiter's treponeme and others).

Ubiquitous antigen, represented by the lipid antigen or cardiolipin, widely diffused throughout the living world.

Further research should establish whether there exists a completely identical antigenic structure in *Treponema pallidum* and the agents of treponematoses other than syphilis. Such studies would contribute to clarify the still obscure problem of whether the agents of the various treponematoses can be considered as distinct species.

The demonstration that *Treponema zuelzerae* (Veldkamp, 1960) has the same protein antigen which is also present in Reiter's treponeme and *Treponema pallidum* (De Bruijn, 1961) emphasizes the group-specific nature of this antigen first postulated by D'Alessandro and Dardanoni in 1952.

Moreover, as shall be seen, a type-specific antigen which is operative in the immobilization reaction has been identified with polysaccharide treponemal antigen (D'Alessandro *et al.*, 1962). From the work of McLeod and Garson (1962) it appears that another type-specific antigen is present in *Treponema pallidum*; this antigen is heat labile and measurable by the TPCF and FTA tests.

Location

We have repeatedly emphasized that the concept of antigenic structure is concerned not only with the presence of various antigens, but also with their location in the treponemal body. We do not have, as yet, any precise data, in spite of several attempts to bring more light on this subject (Dardanoni, 1955). It is probable that the various treponemal antigens in consequence of their different location are more or less available for the action of the corresponding antibodies. This condition should be of importance in all the reactions *in vitro* where whole organisms are used, such as the immobilization, agglutination, immuno-adherence, and immunofluorescence reactions.

Capsule Hypothesis

The hypothesis that pathogenic *Treponema pallidum* is enclosed in a capsule-like envelope which is apt to prevent the contact between antibodies and underlying antigenic groups of the treponemal body is gaining importance; its basis has been recently discussed by Metzger, Hardy and Nell (1961), who have emphasized that there is no unequivocal morphological evidence of such an envelope.

Recent studies in our laboratory (D'Alessandro and Zaffiro, 1961a, 1961b) have added further evidence to the capsule-hypothesis.

Reiter's treponemes obtained from 40–70 hour cultures in thioglycollate medium show definite mobility when observed in darkfield. When these treponemes are exposed to anti-Reiter immune serum in the presence of complement, they become completely immobilized within a few hours; this is followed by morphological changes and disintegration of the treponemal body. Comparative tests have shown that the kinetics of the immobilization reactions of pathogenic *Treponema pallidum* (Nelson and Mayer's test) and of Reiter's treponeme are substantially different. Reiter's treponeme, in fact, is affected immediately by the immobilizing action of the immune serum and complement, with rapid and progressive morphological changes; that is, there is no phase of incubation or "preparation" which, on the other hand, is observed in the immobilization reaction of pathogenic *Treponema pallidum.* These observations lead to the following conclusions: (a) *Treponema pallidum* has a capsule-like envelope; (b) this envelope is lost, apparently spontaneously, after several hours in a liquid medium; (c) Reiter's treponeme does not have such an envelope. These observations have been verified by a comparative morphological examination of electron micrographs of the treponemes: (a) immediately after extraction from the infected testicle (pathogenic treponemes, Nichols strain); (b) the same treponemes after they had remained for about 20 hours at 35° C. in anaerobic maintenance medium; (c) Reiter's treponemes from a 24-hour culture in Brewer's medium.

Figure 1 shows treponemes immediately after the extraction from the syphilized testicles on the seventh day of infection. The treponemal bodies are seen as spiral-shaped cylinders; the edges are not well-defined and there is no sign of structures; the band of fibrils wound around it is either not visible or can be barely distinguished at some points.

Figure 2 shows the usual morphology of treponemes which have remained for 20 hours at 35° C. under anaerobic conditions in Nelson and Mayer's medium. They differ markedly from the treponemes prepared immediately after extraction from the infected testicle: the bundle of fibrils around the body of the treponeme is easily seen and at certain points clearly resolves

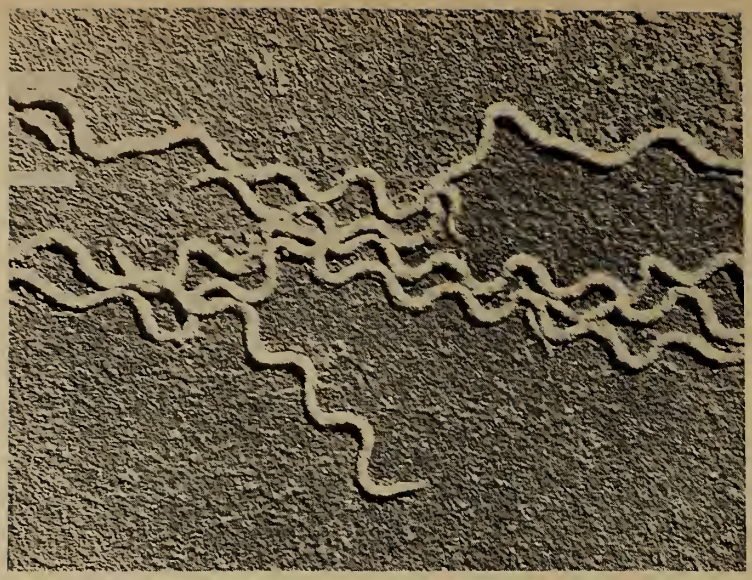

Figure 1. *T. pallidum* (Nichols strain) immediately after extraction from syphilitic testicles (× 15000)

into single fibrils; the outline of the treponemal body is well-defined.

Figure 3 shows Reiter's treponeme at the 24th hour of a culture in Brewer's thioglycollate medium. Reiter's treponeme differs from pathogenic *Treponema pallidum* in that it is larger, the cell outlines are well-defined, the spirals are wider and the extremities are rounded rather than pointed. The Reiter's treponeme is characterized by two bundles of fibrillous filaments, each of which originates subterminally from one of the extremities of the treponeme.

These observations, together with the immunological data referred to, seem to us to be in agreement with the hypothesis that the body of pathogenic *Treponema pallidum* is enveloped by a non-antigenic, labile material.

Polysaccharide Antigen Studies

Of all the various antigens of the treponemal mosaic, attention at present has been focused on the polysaccharide antigen, for reason which we shall soon see. The term polysaccharide is used here since it is the component which de-

Figure 2. *T. pallidum* (Nichols strain) after 20 hours' standing in Nelson and Mayer maintenance medium (× 20000)

Figure 3. Reiter's treponeme (×15000)

termines the immunological specificity of a lipopolysaccharide complex (Fichera *et al.*).

The studies on Reiter's treponemes seem to demonstrate that the particular method used for the isolation of the polysaccharide antigen can influence its antigenicity *in vivo*.

It should be mentioned here that the antigen prepared by D'Alessandro and Del Carpio (1958) gave weak reactions with human syphilitic sera and with sera from rabbits infected with the Nichols strain of *Treponema pallidum*, but these reactions are probably due to contaminating antigens. Actually, the polysaccharide antigen of Reiter's treponeme is type-specific and it has been clearly demonstrated, on the basis of studies by De Bruijn (1959, 1961), Pillot, Dupouey and Faure (1960), Christiansen (1962), and D'Alessandro *et al.*, (1962), that the polysaccharide antigens of Reiter's treponeme, *Treponema pallidum* and *Treponema zuelzerae* are antigenically distinct.

Christiansen (1960) has reported the isolation from pathogenic *Treponema pallidum* of a substance which is probably a polysaccharide and which reacts specifically with syphilitic sera in complement fixation tests.

Immobilizing and Treponemicidal Reactions

It has already been mentioned that when anti-Reiter immune serum is tested with Reiter's treponeme, in the presence of complement, a treponemicidal, immobilizing reaction takes place. It is known that anti-Reiter immune sera do not immobilize pathogenic *Treponema pallidum* (Kahn, Nelson, Turner,

Table 1. (Lipo)polysaccharide prepared from Reiter's treponeme with various methods

Authors	Method	Serological activity *in vitro*	Production of antibodies
D'Alessandro, Oddo, Comes, Dardanoni, 1949 (Palermo).	Extraction with NaOH and precipitation with tricloroacetic acid.	+	−
D'Alessandro and Del Carpio, 1958 (Palermo).	Extraction with desoxycholate and precipitation with tricloroacetic acid.	+	+
De Bruijn, 1959, 1961 (Utrecht)	Tryptic digestion with the method of Raistrick and Topley (1934).	+	(?)
Pillot, Dupouey, Faure, 1960 (Paris)	Disintegration of delipidated treponemes with ultrasonics and precipitation of protein at pH 3.5.	+	(?)
Christiansen, 1962 (Copenhagen)	Extraction with phenol-water (Westphal *et al.*) at +4° C.	+	+
Fichera *et al.*, 1962 (Palermo).	Extraction with phenol-water (Westphal *et al.*) at 68° C.	+	−
Fichera *et al.*, 1962 (Palermo)	Formamide (according to Fuller)	+	(?)

1951); moreover, we have recently observed that human syphilitic sera and sera from experimentally infected rabbits do not immobilize Reiter's treponeme. These and other considerations have led us to the assumption that the polysaccharide antigen, the type-specificity of which has just been referred to, is responsible for the immobilizing, treponemicidal reaction of Reiter's treponeme. In fact, (a) of various sera—human syphilis, experimental rabbit syphilis, and different types of immune sera—only those sera which react with the polysaccharide antigen of Reiter's treponeme in the complement fixation test, namely the Reiter's treponeme immune sera, are also capable of immobilizing this organism; (b) Reiter's treponemes which have been heated for 1 hour are able to absorb immobilizing antibodies from anti-Reiter immune serum and to stimulate their production in rabbits; (c) the addition of polysaccharide to immobilizing Reiter immune serum decreases the 50% immobilizing titer significantly (from 66 to 86%; Figures 4 and 5); (d) an anti-Reiter polysaccharide immune serum (kindly supplied by Dr. Christiansen, Copenhagen) is able to immobilize Reiter's treponeme.

There can be little doubt, therefore, that the polysaccharide antigen from Reiter's treponeme is responsible for the reaction between this organism and the homologous immune serum. It could be argued that the polysaccharide antigen used in our investigations contains as an impurity other antigen or antigens which can be

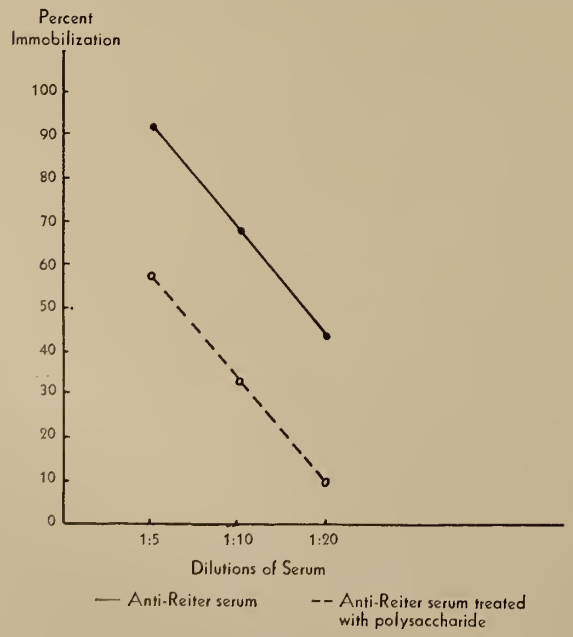

Figure 4

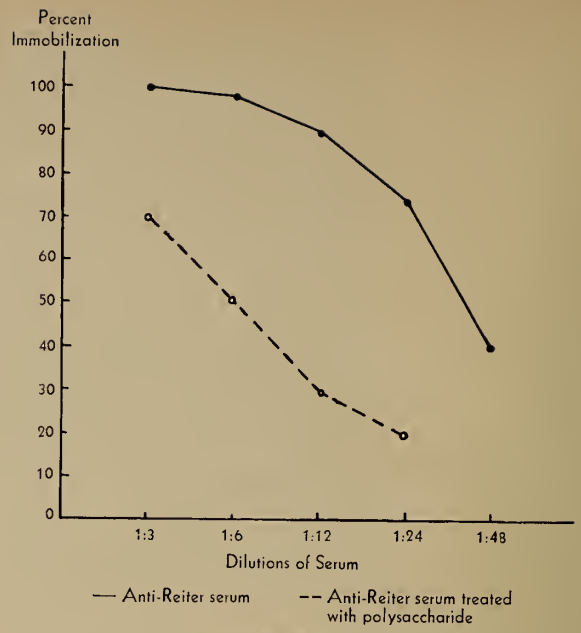

Figure 5

accounted for the reactivity with the immobilizing antibody. For the reason explained here, such hypothetical antigens contaminating the polysaccharide can not be identified with the antigens which have been demonstrated in Reiter's treponeme up to the present. In any case, further research is planned using treponemal polysaccharide of tested purity.

The identification of the polysaccharide antigen as the responsible agent for the immobilization reaction of Reiter's treponeme suggests that a polysaccharide antigen of pathogenic *Treponema pallidum* could also be implicated in the immobilization reaction of this organism (TPI test). This problem is being studied in our laboratory at present, but is as yet unresolved because of the difficulty in obtaining a sufficient quantity of *Treponema pallidum* polysaccharide in a relatively pure state. We have, in the meantime, looked for indirect evidence in favour of the validity of the above mentioned assumption. In fact, it has been observed that, contrary to many data of the literature on this subject, the immunization of rabbits with *Treponema pallidum* (Nichols strain) which had been heated at 100° C. leads to the production of immobilizing antibodies [1] and that 100° C. *Treponema pallidum* can absorb immobilizing antibodies from syphilitic serum (D'Alessandro and Zaffiro, 1962). These data are in agreement

[1] Rabbits have been intravenously inoculated with 575 x 10^6 treponemes, in 5 inoculations at 3-day intervals (25 x 10^6, 50 x 10^6, 100 x 10^6, 100 x 10^6, 200 x 10^6 treponemes) and bled 5 days after the inoculation.

with the assumption that in the infection with pathogenic *Treponema pallidum* the immobilizing antibody is also stimulated by the polysaccharide antigen. This conclusion is in accordance with certain data of studies on TPCF antigen carried out by McLeod and Garson (1962).

Conclusion

The polysaccharide antigen must be considered as being an extremely important component of the treponemal antigenic structure. It is type-specific and it is probable that the study of polysaccharide antigens could be of great value in the elaboration of a scheme of serological classification of the treponemes. Furthermore, as our recent studies have demonstrated, the polysaccharide antigen is responsible for the production of immobilizing and treponemicidal antibodies. This means that in the study of serological reactions and, more generally, of the immunology of the treponemal infections, attention must be focused on the polysaccharide antigens and on the determinants of their immunological specificity. Research along these lines is in progress in our laboratory.

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Immunological Investigations

GERHARD SIEFERT, Ph.D.

ABSTRACT

With the aid of preparative paper electrophoresis seven fractions could be separated from Treponema pallidum (strain Nichols). Two fractions were lipids, five fractions were proteins. One protein and one lipid are linked together to form a lipoprotein. With the exception of two protein fractions, all isolated fractions are serologically active. The active fractions react in the complement fixing test with syphilitic immune sera. The activity of the proteins is lost after heating to 56° C. The proteins are thermolabile, unlike the lipoprotein and the pure lipid which are thermostable. Immunological investigations showed that the total of the protein fractions is a complete antigen, which is capable of inducing the formation of syphilitic antibodies; there is no formation of reagins. If immunization is done with the pure lipid fraction no specific antibodies and no reagins are formed. The lipid extract has no real antigenic properties.

Protein extract induced specific antibodies against Treponema pallidum, but only antibodies which react in the complement fixation test, not in the immobilization test.

Since the investigations are not yet finished, it is not possible at the present time to give definitive conclusions on immunological problems.

SOMMAIRE

Grâce à une électrophorèse préliminaire sur papier, on a pu séparer sept fractions du Treponema pallidum (souche Nichols). Deux de ces fractions étaient des lipides, et cinq des protéines. Une protéine et un lipide se lient pour former une lipoprotéine. A l'exception de deux fractions protéiniques, toutes les fractions isolées ont une activité sérologique. Les fractions actives réagissent dans le test de fixation du complément avec des sérums immunisés contre la syphilis. L'activité des protéines disparaît après chauffage à 56° C. Les protéines sont thermolabiles, au contraire de la lipoprotéine et du lipide pur qui sont thermostables. Les recherches immunologiques ont montré que le total des fractions protéiniques était un antigène complet capable de provoquer la formation d'anticorps syphilitiques; il ne se forme pas de réagines. Si l'immunisation est accomplie avec la fraction lipide pur, il ne se forme ni anticorps spécifiques, ni réagines. L'extrait lipide n'a pas de propriétés antigéniques réelles.

L'extrait protéinique a provoqué des anticorps spécifiques contre le Tréponema pallidum, mais uniquement des anticorps qui réagissent dans le test de fixation du complément et non dans le test d'immobilisation.

Comme les recherches ne sont pas encore terminées, il n'est pas possible à l'heure actuelle de donner des conclusions définitives sur les problèmes immunologiques.

RESUMEN

Con la ayuda de la electroforesis en papel siete fracciones pudieron separarse del Treponema pallidum (tipo Nichols). Dos fracciones eran lipidos, cinco fracciones eran proteinas. Una proteina y un lipido se unen para formar una lipoproteina con la excepción de dos fracciones de proteina, todas las fracciones aisladas son serologicamente activas. Las fracciones activas reaccionan en la prueba de fijación de complemento con el suero inmuno sifilitico. La actividad de las proteinas se pierde después de calentarlas a 56° C. Las proteinas son termolabilas contrastando con las lipoproteinas y los lipidos puros que son termoestables. Las investigaciones inmunologicas muestran que la suma de las fracciones de proteinas es un antigeno completo, que es capaz de inducir á la formación de reactores. Si la inmunización se hace con la fracción de lipido puro, no se forman anticuerpos ni reactores. El extracto lipido no tiene propiedades antigenas.

El extracto de proteina indució anticuerpos especificos contra el Treponema pallidum, pero solo anticuerpos que reaccionan en la prueba de fijación del complemento, no en la prueba de inmobilización.

Puesto que las investigaciones no se han terminado todavía, no es posible en este momento llegar a conclusiones definidas en problemas inmunológicos.

DURING THE LAST years many new methods of serological tests for syphilis diagnosis were introduced. These different methods are based on new knowledge concerning immunological data, which were found.

One of the new methods was the Treponema Pallidum Immobilization Test (TPI); or Nelson test, named after its discoverer. By means of introduction of the TPI test it was possible to increase the specificity of syphilis diagnosis very much. However, since there are many

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difficulties in carrying out this test, only well established laboratories can execute it. This is one of the reasons why the development in syphilis diagnosis is not finished yet.

In 1955 Portnoy and Magnuson isolated a protein fraction, which they extracted from virulent *Treponemata pallida* (strain Nichols). This protein extract reacted as an antigen in the complement fixation test (TPCF), carried out after the Kolmer technique, and this reaction had a high specificity on lues.

In the meantime the results of Portnoy and Magnuson were confirmed by other investigators.

Before the proteins were extracted it was necessary to remove the lipids of *Treponema pallidum* first, and then to analyse the residue and to isolate the protein substances. In our own investigations the unity of the isolated protein and lipid fractions was proved, and also the thermal conduct of the extracts concerning the serological activity. Further on it was proved if the serological activity of the protein or lipid extracts are based on a real antigenicity or if these substances had only hapten properties.

Immunological Investigations

By means of continuous preparative paper electrophoresis (principle of separation after Grassmann and Hannig) it was possible to separate the isolated protein fraction into five subfractions. The lipids could only be separated in two fractions. One of the lipids and one of the five proteins are linked together to a lipoprotein.

Considering the course of separation during electrophoresis the pure lipid fraction moves rapidly; behind it there are the protein fraction I, a seam behind fraction I, after the seam follow the fractions II and III, which were found close together, at last follows fraction IV, the lipoprotein. Portnoy and Magnuson proved the complete protein extract in the complement fixing test and they found a high serological activity. Therefore we have proved serological activity of the different isolated fractions by using them as antigens. Out of the five protein fractions only three showed a serological activity, the protein fraction I and the seam behind fraction I, fraction IV, the lipoprotein, and also the pure lipid fraction.

Protein fractions II and III did not react with a syphilitical rabbit serum. Syphilitical rabbit sera were the reservoir for luetic antibodies in our experiments. Investigations about the thermostability of the different lipid and protein fractions, which were serologically active, showed that the substance could be divided into three groups of thermostability.

The pure protein fractions, fraction I and the seam behind fraction I, lost the whole activity when the proteins were kept at 56° C. for 30 minutes. During the same inactivation terms the lipoprotein lost about half of its serological activity. When the lipoprotein and the pure lipid fraction were heated to 70° C., the lipoprotein lost its whole activity. The activity of the pure lipids was not altered. From these results it follows that there are three groups of thermostability:

1. Thermolabile protein (to be inactivated at temperatures lower than 56° C.).
2. Thermostable lipoprotein (to be inactivated between 56° C. and 70° C.).
3. Thermostable lipids (to be inactivated between 70° C. and 100° C.).

There are two possibilities to explain the serological activity of the isolated fractions. The serological properties could be only haptens or they could be complete antigens. To decide which one of these possibilities is right immunological investigations were carried out in cooperation with Heymann. These experiments are not finished yet, but till now the following data resulted.

Rabbits were proved on their value of reagins and spirochetal antibodies before immunization. Only rabbits without any syphilitical antibodies were employed. One group of animals was immunized with protein extract, without lipids, which was extracted from virulent *Treponemata pallida* (strain Nichols). The other group was immunized with lipid extract, without protein. During 6 weeks the rabbits—immunized with protein extract—formed specific spirochetal antibodies, for the resulting immunsera reacted with the immunization agents—the protein extract—as well as with *Pallida* antigen, a suspension of spirochetes, which was produced by Reiter-spirochetes. However, these immunsera did not react with Cardiolipin, beef heart extract and other lipid haptens. Therefore it follows, that after an immunization against pure proteins no reagins are produced.

When the rabbits are immunized with lipids no specific antibodies and no reagins are formed. The lipid extract possessed only hapten quality; it is no pure antigen in the contrary of the protein extract. How far the different protein subfractions induct specific antibodies is uncertain yet, because the investigations are not finished. Experiments of Schneeweis showed

that immunsera, produced by protein extract, did not immobilize motile virulent *Treponema pallidum*. Therefore there must be still other antibodies which react in the Treponema Pallidum Immobilization Test (TPI) and which are formed only by immunization or infection with virulent, motile organisms and not by immunization with extracts.

Summarizing Data

With help of preparative paper electrophoresis seven fractions could be separated from *Treponema pallidum* (strain Nichols). Two fractions were lipids, five fractions were proteins. One protein and one lipid are linked together to form a lipoprotein. Except two protein fractions all isolated fractions are serological active. The active fractions react in the complement fixing test with syphilitical immunsera. The activity of the proteins is lost after heating to 56° C. The proteins are thermolabile in contrast to the lipoprotein and the pure lipid which are thermostable. Immunological investigations showed that the total of the protein fractions is a complete antigen, which is able to induce the formation of syphilitical antibodies; there is no formation of reagins. If immunization is done with the pure lipid fraction no specific antibodies and no reagins are formed. The lipid extract reacts only as hapten; it has no real antigenic properties.

Protein extract induced specific antibodies against *Treponema pallidum*, but only antibodies which react in the complement fixation test, not in the immobilization test.

Since the investigations are not yet finished, it is not possible at the present time to give definitive conclusions on immunological problems.

Persistence of *Treponema Pallidum* in Late Syphilis in Rabbits and Humans, Notwithstanding Treatment

PIERRE COLLART, M.D.

ABSTRACT

Little has hitherto been known as to the effect of therapy on long-standing syphilis. The literature deals only with cases of a year's standing at most, and consists solely of results of serological and ganglion passage tests.

The questions covered in this research are: what is the meaning of the appearance of antibodies on treatment administered some time after infection, and does penicillin have the same effect when administered long after contraction of syphilis as it does in the early stages?

The Authors investigated rabbits treated initially at least two years after infection, over a period of an additional two years. During this period, tests made included quantitative T.P.I. tests of the blood serum, bacteriological tests using a silver dye technique developed by a member of the team from Dieterle's method, and biological tests, including ganglion and organ passage from diseased to healthy animals.

On the basis of repeated experiments, the Authors conclude that spirochetes found in serum and biopsy specimens of the ganglia of experimental animals, even after numerous negative passages, have lost all or most of their virulence, and that they remain in the host body in a commensal state. No doubt the germs would be capable of regaining their virulence under still unascertained biological stimuli. Hence the passage test can no longer be considered a sole or adequate criterion of cure or infection in syphilis.

The Authors also conclude, on the basis of further studies in humans, that therapy does not destroy Treponema that have long been residents of the host organism; that the presence of spirochetes is the causative factor in the persistence of antibodies in the serum; that such Treponema are no longer virulent, but exist in a commensal state with the host body. Hence syphilis can be likened in its behavior to the other long-term infectious diseases.

SOMMAIRE

L'effet de la thérapie sur la syphilis ancienne a été peu connu jusqu'à présent. La littérature ne traite que des cas datant d'un an au maximum, et elle consiste uniquement en résultats des épreuves sérologiques et de passages de ganglion.

Les questions traitées par cette recherche sont: qu'elle est la signification correcte à attribuer à la persistance des immobilisines après un traitement effectué tardivement; et la pénicilline possède-t-elle la même activité au cours de la syphilis ancienne que pendant la période précoce?

Les AA ont investigué des animaux traités initialement au moins deux ans après l'infection, en couvrant une période d'encore deux ans. Pendant cette période, les épreuves faites sur les animaux ont inclu des épreuves quantitatives T.P.I. pour le sérum, ainsi que des tests biologiques en se servant d'une technique de coloration développée par un membre de l'équipe sur la base de celle de Dieterle, et des épreuves biologiques qui comprenaient des passages de ganglions et d'organes aux animaux sains.

Sur la base des expériences répétées, les AA concluent que les spirochètes trouvées dans le sérum et dans les biopsies des ganglions des animaux expérimentaux, même après de nombreux passages négatifs, ont perdu tout ou une partie de leur virulence, et qu'elles restent dans l'organisme de l'hôte dans un état de commensalité. Sans doute, le germe serait-il capable de redevenir virulent par suite de conditions biologiques que l'on ne connait pas encore. Donc on ne peut plus considérer le test des passages d'organes comme étant le seul critère de guérison ou d'infection.

Les AA conclurent aussi, sur la base d'études ultérieures chez les humains, par moyen de frottis ganglionnaires, etc., que la thérapie appliquée au cours de la syphilis tardive n'est plus capable de détruire les tréponèmes installés depuis longtemps dans l'organisme de l'hôte; que la présence des spirochètes détermine la persistance des immobilisines dans le sérum; que les tréponèmes décelés n'étaient plus virulents, mais qu'ils persistaient dans les tissus à l'état des germes commensaux. Donc ils en conclurent que le comportement de la syphilis pourrait être assimilé à celui des autres maladies infectieuses à long cours.

RESUMEN

Poco se ha sabido hasta ahora de los efectos de la terapia en la sífilis de mucho tiempo. Lo escrito sobre ello se refiere solo a casos de un año de duración por lo menos y consiste exclusivamente en los resultados de las pruebas serológicas y ganglionales realizadas.

Las preguntas que se formularon en esta investigación fueron: ¿Cuál es la significación de la aparición de anticuerpos en tratamientos administrados mucho después de haber adquirido la sífilis? ¿y tiene la penicilina el mismo efecto cuando es administrada mucho después

de haber contraido la sífilis un paciente que cuando es administrada en etapas incipientes?

Los autores investigaron los conejos tratados al principio por lo menos dos años después de la infección, por un periodo de más de dos años más. Durante este periodo pruebas realizadas incluian las pruebas cuantitativas T.P.I. del suero sanguineo, pruebas bacteriológicas usando una técnica de tinte de plata desarrollada por un miembro del grupo del método Dieterle, y pruebas biológicas incluyendo la trasmisión ganglionar de los órganos de animales enfermos á animales sanos.

A base de repetidos experimentos los autores llegan a la conclusión que espiroquetas encontradas en el suero y especimenes de bioecias realizadas en los gánglios de animales para experimentación aún después de numerosas trasmisiones negativas, han perdido toda ó la mayoria de su viruleneia y en el cuerpo del paciente cantagiado en un estado commensal. Sin duda los germenes serian capaz de volver a tener virulencia aún bajo estimulos no determinados. De ahí, que la prueba de trasmisión de la infección no pueder ser considerada más como un solo criterio ó un criterio especifico para la cura o infeceión de la sífilis.

Los autores también han llegado a las siguientes conclusiones, basándose en estudios más avanzados realizados en humanos: que la terapía no destruye el Treponema que ha permanceido largo tiempo en el organismo enfermo; que la preseneia de las espiroquetas es el faetor eausativo en la persistencia de los antieuerpos en el suero; que tales Treponemas no son virulentos, pero que existen en un estado commensal en el euerpo enfermo. De ahi, que la sífilis puede ser semejante en su comportamiento a otras enfermedades infecciousas de larga duración.

MANY AUTHORS have studied the effectiveness of therapy in late experimental syphilis, but all such inquiries hitherto have centered upon infections a year old at most, and the results were established only on the basis of serological examination and lymph node transfers.

Two questions naturally arise, which previous studies do not seem to have clarified:

What significance should correctly be attributed to the continued appearance of immobilisines after treatment administered a considerable time after infection?

Does penicillin have the same effectiveness in late syphilis as it has when administered in the early stages?

It was in order to study this problem that we undertook this research, which was carried out in animals untreated for two years following infection. During the next two years, results were established on the basis of a triple check:

1. *Serological*, by means of *quantitative T.P.I.*

2. *Bacteriological*, by means of a silver dye similar to that of Dieterle (1927), and perfected by one of our team (M. Dunoyer). Remarkable patience is required to find Treponema by this method. This may mean 6 hours by slide and the examination of 15 to 25 slides for each case!

3. *Biological*, by means of lymph node and organ passages to healthy animals.

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I. Experimental Study

In September of 1957 we injected 50 new rabbits intratesticularly with 50 million *Treponema pallidum* (Nichols strain). Those rabbits were, of course, T.P.I. negative. All developed orchitis. We kept them under observation for two more years, with frequent serological tests (Figure 1).

Eighteen Months After Infection: Popliteal lymph nodes were removed from the 38 surviving rabbits and transplanted to 38 new rabbits:

29 of the transplants produced a syphiloma within 30 to 40 days following inoculation,

2 produced non-apparent syphilis only,

7 were considered negative.

Two Years After Infection: Of the remaining 27 animals:

7 were kept as controls,

20 received 200,000 units per kilogram of body weight of benzathine penicillin G. Penicillemia averaged 0.09 to 0.94 U.O./ml.

AFTER TREATMENT: We applied our triple check:

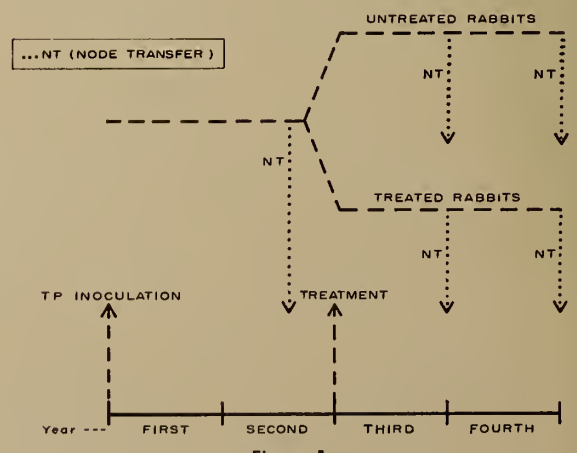

Figure 1

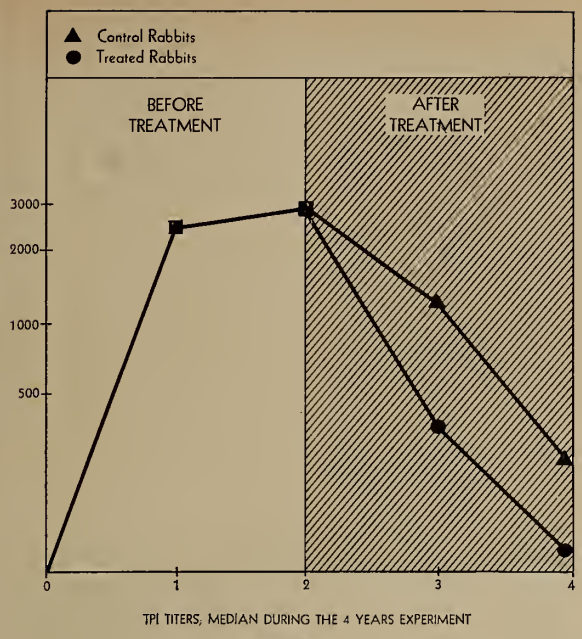

Figure 2

1. Results of the quantitative T.P.I. (Figure 2):

a. In the control animals, the T.P.I., which had been constant at about 3,000, spontaneously dropped to 300 within four years.

b. In the treated animals, the curve dropped faster: From 3,000 before treatment, the median count fell to 800 six months later, then to 330 after a year, and to 150 after a year and a half.

2. Results of the bacteriological examination:

Eight to 12 months after the completion of penicillin treatment, popliteal nodes were removed from all 27 rabbits (treated and control) for bacteriological examination of the smears and for transplantation to the same number of new animals.

All these biological examinations, in both the control animals and the treated specimens, showed the continued presence of Treponema in the lymphatic tissue. Of course, some of them did not show the typical morphology, but those we classified as atypical are accepted as *Treponema pallidum* by all the experts in this field.

In some cases, Tp were also demonstrated in nasal mucus, testicle, spleen, bone marrow and spinal fluid.

In the 7 control animals, we found 3 cases of typical spirochetes and 4 cases of so called atypical. Figure 3 shows that these forms are sometimes found within close vicinity.

In the 20 treated animals, examination showed 11 typical morphologies and 9 more debatable forms.

In rabbit N°28, the node was removed 293 days after administration of 620,000 units of benzathine penicillin G. The smear shows typical Treponema in fairly large numbers. (Figure 4.)

In rabbit N°34, the node was removed 294 days after treatment, and the smear shows typi-

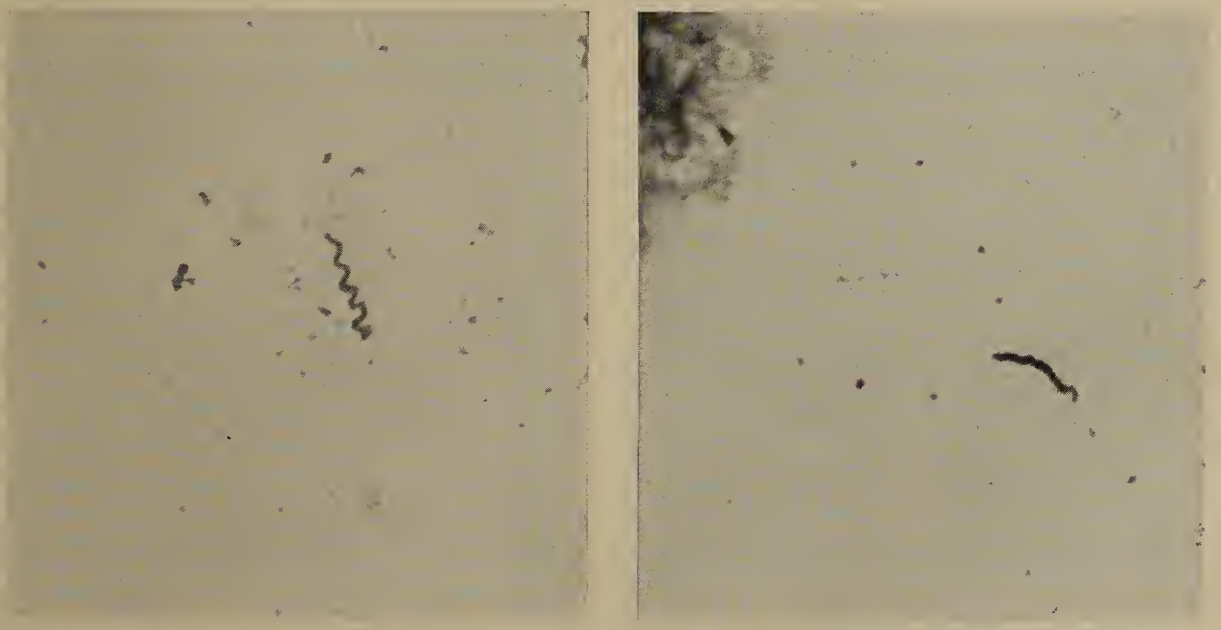

Figure 3. Smears of popliteal lymph nodes from untreated rabbits, four years after inoculation. *Left:* Typical T.P. *Right:* So-called atypical

Figure 4. Smears of popliteal lymph nodes. (Rabbit No. 28)

cal Treponema along with some atypical specimens. (Figure 5.)

3. Results of lymph node transplants to new rabbits:

For the 7 control rabbits, it is important to compare the results obtained at the time of the first transplant (on the 24th month) with those of the second (a year later).

The first time, we found 6 syphilomas and 1 non-apparent syphilis out of 7 control animals.

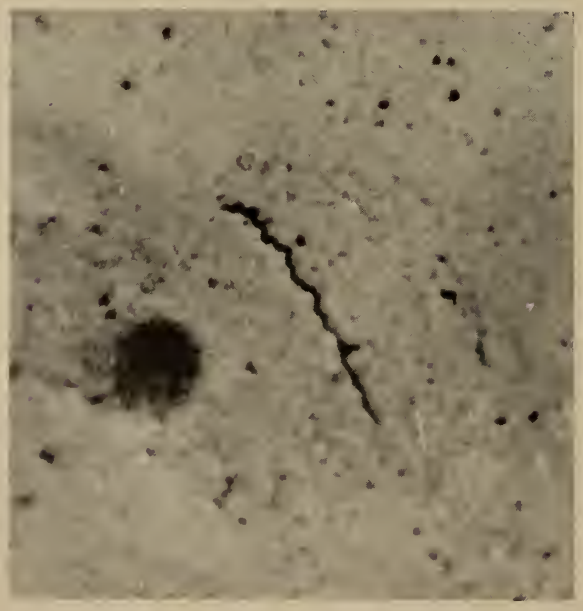

Figure 5. Smears of popliteal lymph nodes. (Rabbit No. 34)

The second test, made a year later (on 6 surviving animals) yielded 2 positive results and 4 considered as negative.

Among the 20 treated rabbits:

In 1 case, the transfer induced a non-apparent syphilis, with a positive T.P.I. and Treponema present in the popliteal node (the graft was particularly rich in Treponema).

The other 19 would have been considered as negative by current standards. There was no lesion, the T.P.I. was negative, however the nodes of 8 of the new hosts showed Treponema.

4. Results of injections of cortisone:

An attempt at reactivation was made with a total dose of 200 mg of cortisone administered

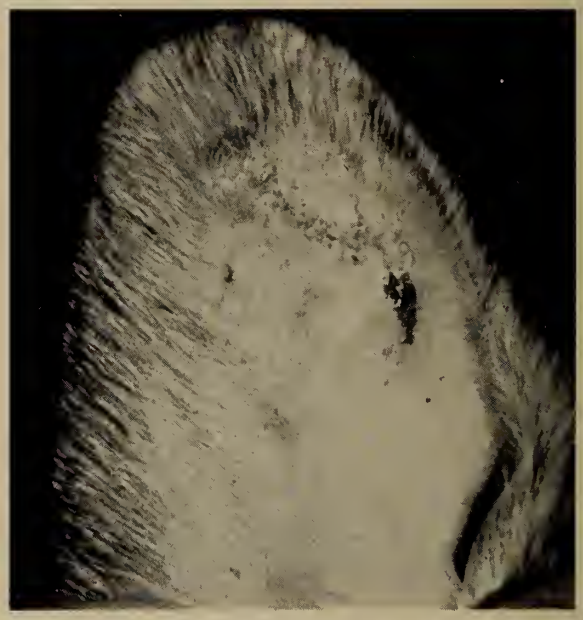

Figure 6. Lesion of experimental late syphilis of the ear 2 months after shot of cortisone acetate in rabbit treated with penicillin

to 12 animals treated a year before by penicillin and also to a single control animal left untreated for three years after the initial inoculation.

Two months after cortisone, 1 of the treated rabbits showed typical advanced syphilitic lesions of the ear (Figure 6), although the lymph node transfer to another rabbit remained without response.

The circinate elements are similar in every respect to those published in 1920 by Brown and Pearce.

In our case, histological examination showed only a state of inflammation fairly poor in

Figure 7. T.P. found in the lesion shown in Figure 6

plasmocytes, with a little capillaritis. Examination of the biopsy slide, however, revealed the presence of moderately atypical Treponema. (Figure 7.)

To summarize we can present these facts:

1. In the non-treated syphilitic rabbits, 2 years after infection:

a. The T.P.I. drops spontaneously after the second year, but not to become negative.

b. All the nodes remain Treponema carriers.

c. In late transfers, only 2 out of 6 were positive.

2. In the rabbits treated 2 years after infection:

a. The T.P.I. dropped by more rapid stages than in the control animals, but none became negative, even two years after treatment.

b. All the nodes were still Treponema demonstrating 8 to 12 months after termination of penicillin therapy.

c. Eighteen node transplants were negative, while the nineteenth caused non-apparent syphilis.

d. After cortisone treatment, however, 2 rabbits exhibited the classical symptoms of advanced experimental syphilis.

Discussion

Three additional research projects became indicated:

1. Could such spirochete formations be found in normal rabbits? We proceeded to such research with 3 new animals, using the same technique and the same procedure: the results were 100% negative.

2. To counter the objection of penicillin resistance in the strain used, we inoculated 4 healthy animals with the same material, and we treated them thirty-three days after the onset of orchitis. Two of them received 30,000 units of benzathine penicillin G per kilogram of body weight, and the other two received 40,000 units per kilogram. During the eight months of observation, the T.P.I. remained consistently negative, no lesions appeared, node smears showed no Treponema, and all lymph node transfers were negative.

3. Was the treatment too mild? To answer this question, rabbits infected with syphilis two years before were given as much as 9 megaunits of penicillin per kilogram of body weight: in each case, we found Treponema in the lymphatic tissues six to eight months after termination of this treatment.

Figure 8 is an example of the results we encountered in node smears from an animal that had received 6 megaunits of penicillin per kilogram in 7 days which is the equivalent of 420 million units for a man weighing 70 kilos.

Conclusion

On the basis of these experimental results, we can conclude:

1. That there can be no doubt as to the persistent vitality of the spirochetes thus demonstrated.

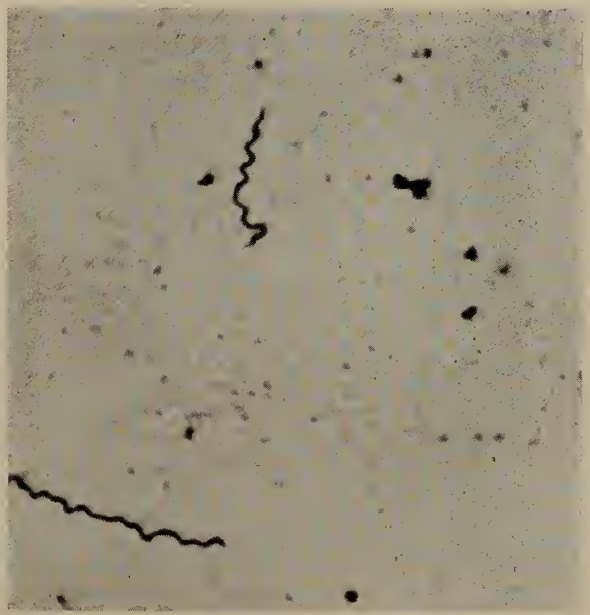

Figure 8. Smear of rabbit popliteal lymph node 7 months after treatment by enormous amount of penicillin (6 mega units/Kg.)

2. That the numerous negative passages observed might perhaps be interpreted as due to the small number of organisms present in the transplanted tissues; we think it more likely that these Treponema have lost part or all of their virulence, and that they remain in the body in a state of commensality.

3. Undoubtedly the germ would be capable of regaining part or all of its virulence under certain biological conditions still unknown to us.

4. That in view of these results, we can no longer consider the organ-passage test the sole criterion of infection or cure.

In closing, we may assume, on the basis of these experimental findings that any amount of a penicillin treatment is unable to destroy all treponema if administered at a late stage of the infection.

II. Study in Human Beings

It was important to find out whether occurrences similar to those observed in experimental syphilis could be duplicated in human pathology.

For this purpose, we obtained inguinal specimens from 10 syphilitic patients, in the following categories: (1) Three with latent syphilis; (2) six with tabes; (3) one with P.G. plus tabes.

Treatment: All these patients except one had received several different treatments during periods varying from 1 to 16 years.

Serology: All showed positive T.P.I., two of them showing only partial immobilization.

Figure 9. Smears of popliteal lymph nodes from a syphilitic patient treated during a long time

Figure 10. Smears of popliteal lymph nodes from another syphilitic patient also treated during a long time

Lymph Node Specimens: These were taken from 1 to 12 months after termination of the final therapeutic series.

In 10 cases, our coloration technique revealed Treponema; 6 of the cases were typical, and 4 "atypical."

Figure 9 shows smears from a patient who had been treated for chancre with arsenic and mercury, and later with 130 megaunits of penicillin; S.T.S., T.P.I., and F.T.A. were all positive. Atypical Treponema present in the node slide.

Figure 10 shows tabes treated with several series of bismuth and 120 penicillin shots (dosage unknown). All reactions positive. Typical Treponema in the node slide.

Node Transplants: In 5 cases we transferred inguinal nodes to healthy rabbits. In 3 cases, graft punctures made on the 54th, 128th and 142nd day after sub-scrotal inoculation produced serosity containing Treponema revealed by our special coloration technique. The dark-field test was negative in every case.

Figure 11 shows tabes treated with arsenic, bismuth, mercury and 50 megaunits of penicillin. T.P.I. positive. Atypical Treponema found in ingninal node. Graft punctures from the host animal 113 and 137 days after implantation yielded typical Treponema in the serosity, as shown on this photograph.

Figure 12 shows tabes treated with arsenic, bismuth and 151 megamits of penicillin.

Figure 11. Smears of rabbits' popliteal lymph nodes. These rabbits have been inoculated intratesticularly with human syphilitic lymph nodes

Atypical Treponema in the inguinal node. Ten graft punctures of the receptor rabbit made between the 31st and 142nd days yielded typical Treponema specimens.

Conclusions

From the overall picture of these results, we should be able to draw the conclusions that, in both men and experimental animals:

1. Therapy administered long after contraction of syphilis cannot destroy the Treponema that have been longtime residents in the host body.
2. The presence of spirochetes is the determining factor in the persistence of antibodies in the blood serum.
3. The Treponema discovered were still viable, but had lost all or part of their virulence, persisting in the tissues in the state of commensal organisms.
4. Under biological conditions still not ascertained, these organisms can revert and become pathogenic, at least to the host that shelters them.

Hence the behavior of syphilis can be likened to that of other long-term infectious diseases.

Acknowledgements

This lengthy research was made possible by repeated subsidies from the Waksman Foundation for the Development of Microbiological Studies in France. Our thanks are also due to Prof. P. Gastinel, Dr. Roiron, and Prof. B. Duperrat, for their invaluable assistance.

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Figure 12. Smears of rabbits' popliteal lymph nodes. These rabbits have also been inoculated intratesticularly with human syphilitic lymph nodes

Efficacy of Penicillin in Treating Treponematoses

RESAD TAHIR KINACIGIL, M.D.

ABSTRACT

As no other treponematose is found in Turkey, only syphilis will be considered here.

Prior to 1910, no really effective cure for syphilis existed. Salvarsan, introduced in 1910, and bismuth in 1921 were specific therapeutic agents, but they have the disadvantages of length of treatment and signs of toxicity and sensitivity. A real breakthrough came in the early 1940's with penicillin.

Turkey initiated penicillin therapy of syphilis in June 1946. It has been found to be by far the most efficacious method, and is the only one used. As a result, the number of patients (121,090) being treated throughout the country in 1946 dropped to 43,259 by 1956.

The amorphous form of penicillin has given the best and most rapid results. No standard rules of application can be prescribed, and the dosage must be regulated according to each case. The important thing is to maintain a concentration of 0.20 gamma per mm³ during the whole 24 hours. The test dose averages 300,000 units.

In general, dosages for the various forms of syphilis should be as follows: primary, no less than 20 million units; 3rd period (delayed), no less than 15–20 million; latent, no less than 15 million; cardiovascular, no less than 12 million, with, in the majority of cases, the addition of iodine, bismuth, and cyanide of mercury; neurosyphilis, more than 20–30 million units, with the addition of pyretotherapy, bismuth, iodine, and cyanide of mercury; ocular, not less than 15 million units, and, depending on the case, the addition of iodine and cyanide of mercury; syphilis of other internal organs, the same as for cardiovascular; prenatal, 10–12 million units.

In 95 percent of cases there is a strong pyretic reaction 3–6 hours after the injection. Sensitivity to penicillin is very rare. Recurrence of the disease and resistance to treatment occur only in a small number of cases, particularly when the treatment is incomplete or stretched over too long intervals.

Posttreatment checks are continued for two years, using serological tests (Kolmer-Wassermann and Kahn).

SOMMAIRE

Comme on ne trouve pas d'autres tréponémaloses en Turquie, seule la syphilis sera examinée ici.

Avant 1910 il n'existait aucun traitement vraiment efficace de la syphilis. Le salvarsan, introduit en 1910, et le bismuth en 1921 furent des agents thérapeutiques spécifiques, mais ils présentent les inconvénients de la longueur de traitement et de l'apparition de signes d'intoxication et de sensibilisation. L'introduction de la pénicilline vers le début des années 40 a marqué un réel progrès.

La Turquie a entrepris le traitement de la syphilis par la pénicilline en juin 1946. Cette méthode a été jugée être de loin la plus efficace, et elle est la seule pratiquée aujourd'hui. En conséquence, le nombre de malades (121,090) sous traitement dans le pays en 1946 est tombé à 43,259 en 1956.

La forme amorphe a obtenu les résultats les meilleurs et les plus rapides. On ne peut indiquer de règles universelles quant à l'application du remède, et le dosage doit être déterminé selon le cas individuel. L'important est de maintenir une concentration de 0.20 gamma par mm³ pendant tout le nychtémère. La dose test est en moyenne de 300.000 unités.

En général, les dosages pour les différentes formes de la syphilis doivent être les suivants: primaire, au moins 20 millions d'unités; 3ème période (tardive), au moins 15–20 millions; latente, au moins 15 millions; cardio-vasculaire, au moins 12 millions, avec en supplément dans la plupart des cas, l'iode, le bismuth, et le cyanure de mercure; neurosyphilis, plus de 20–30 millions d'unités, avec en supptément la pyrétothérapeutique, le bismuth, l'iode, et le cyanure de mercure; oculaire, au moins 15 millions d'unités, avec en supplément, selon le cas, l'iode et le cyanure de mercure; syphilis des autres organes internes, mêmes dispositions que pour la forme cardio-vasculaire; prénatale, 10–12 millions d'unités.

Dans 95 pourcent des cas, une forte réaction pyrétique se produit de trois à six heures après l'injection. La sensibilité à la pénicilline est très rare. Les récidives et la résistance au traitement n'apparaissent que dans un nombre restreint de cas, particulièrement lorsque le traitement n'est pas achevé ou est trop espacé.

Le contrôle se poursuit pendant deux ans après le traitement au moyen d'examens sérologiques (Kolmer-Wassermann et Kahn).

RESUMEN

Toda vez que en Turquia no existen otras variedades de treponemiasis, solamente nos ocuparemos aquí de la sifilis.

Hasta 1910 no se había encontrado ningún remedio eficaz contra la sífilis. El salvarsán, que se empezó a usar en 1910, y el bismuto, en 1921, son agentes terapéuticos específicos, pero adolecen de desventajas puesto que el tratamiento es de larga duración y producen

toxicidad y sensitividad. Un gran paso de avance se logró a principios del decenio del cuarenta con la penicilina.

Turquía inició la terapia a base de penicilina en junio de 1946. Ha resultado ser ése con mucho el método más eficaz, siendo el único empleado en la actualidad. El resultado es que la cifra de 121.090 pacientes bajo tratamiento en todo el país en 1946, para 1956 había descendido a 43.259.

La forma amorfa de la penicilina es la que ha dado los mejores y más rápidos resultados. No se pueden fijar normas generales para su empleo, debiendo regularse la dosificación según las características de cada caso. Lo esencial es mantener una concentración de 0.20 gamma por mm³ durante todas las 24 horas. La dosis de ensayo es de un promedio de 300.000 unidades.

En términos generales, la dosificación, para las diversas variedades de sífilis ha de ser la siguiente: para la primaria, no menos de 20 millones de unidades, para el tercer período, (diferido), no menos de 15 a 20 millones; para la latente, no menos de 15 millones; para la cardiovascular, no menos de 12 millones, empleándose también en la mayoría de los casos yodo, bismuto y cianuro de mercurio; para la neurosífilis, más de 20 a 30 millones de unidades, usándose también terapia pirctógena, bismuto, yodo y cianuro de mercurio; para la ocular, no menos de 15 millones de unidades y, según el caso, se usa también yodo y cianuro de mercurio; para la sífilis de los órganos internos, la misma que para la cardiovascular; para la prenatal, de 10 a 12 millones de unidades.

En el 95% de los casos se registra una fuerte reacción pirctógena entre 3 y 6 horas después de puesta la inyección. Los casos de sensibilidad a la penicilina son muy escasos. Sólo en un pequeño número de casos se repite la enfermedad y se registra resistencia al tratamiento y, ésto último, especialmente en aquellos casos en que el tratamiento ha sido incompleto o se ha llevado a cabo a intervalos demasiado largos.

Durante dos años se realizan exámenes post-terapéuticos por medio de análisis serológicos (Kolmer-Wassermann y Kahn).

FROM CHRISTOPHER COLUMBUS to Ehrlich, syphilis has been considered an extremely serious disease; and none of the treatments instituted had much effect. Ehrlich in 1910 with Salvarsan, and Sazerac and Levaditti in 1921 with bismuth opened up new prospects for the treatment of the treponematoses. But the length of the cures, and the appearance of signs of toxicity and sensitivity being caused, led syphilologists to seek still better treatments. Fleming and Florey gave those who attack the treponematoses a powerful new weapon when they added penicillin successfully to the therapeutic arsenal.

The first results were published by J. F. Mahoney and his collaborators, R. S. Arnold and A. Harris of the Staten Island Naval Hospital. In December 1943 (Am. J. Bul. Health 33: 1387 and Ven. Dis. Inform. 24: 355–357) there then followed the publications of O'Leary and Herell of the Mayo Clinic, and those of Rantz and Kirby in 1944. The most complete report was presented in 1944 by Moore and Stockes to the American Medical Association. Following the United States, the English and French authors published their results.

Our clinic was the first in Turkey to practice treatment of syphilis with penicillin, in June 1946. (The results of the first 10 years of the application of penicillin in syphilography were presented at the XIV Turkish National Medical Congress and at the 1st International Symposium of Venereal and Syphilis Diseases held in Washington, D.C., in 1956.)

Although 20 years have passed since its first use, the author is partly optimistic and partly pessimistic about the results obtained.

Penicillin has been furnished from amorphous to the benzathine penicillin G form. Penicillin is easy to apply, has almost no secondary effects, and has a sure treponemicide action. This product is therefore in the first rank in the treatment of syphilis and the other treponematoses.

Thanks to this treatment, the statistics of morbidity are constantly decreasing. One must acknowledge the contribution of the WHO, the work of which on endemic syphilis and the various treponematoses has made this success possible. Whatever one may say, the past 20 years have been crowned with success. As is the case everywhere else in the world, in Turkey syphilis is treated solely with penicillin.

In 1946 there were 121,090 (6.4%) syphilitics being treated; thanks to penicillin this number fell to 43,259 (1.4%) in 1956.

In our city of Izmir, which is a port on the Aegean, 240 new cases of syphilis were recorded in 1946. This figure fell to 56 in 1960. We treated 177 patients in our clinic in 1946. In 1961 this figure was only 20.

Methods of Treatment

One still cannot prescribe a standard method of treatment. One has to regulate the doses of penicillin in accordance with each case. One must always remember this sentence from Professor Lapierre: "Although syphilis is the same

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everywhere, it is a disease that presents peculiarities with each sick person."

We have used different pharmaceutical forms of penicillin, from the amorphous to PAM and benzathine penicillin G. In our opinion it is the amorphous form that gives the best and most rapid results. We have been truly successful with this product. These patients [that we have] followed up since 1947 have shown no clinical or serological recurrence.

The important point in the treatment consists in maintaining a concentration of 0.20 gamma per mm^3 during the whole 24 hours. The test dose is an average of 300,000 units.

Treatment According to the Sort of Syphilis

Primary syphilis. In the case of persons showing lesions of the first and second period (up to 6 months after the appearance of the chancre) the total dose should not be less than 20 million units. The secondary signs usually begin to disappear after the administration of 12 million units. But there are cases that are resistant to these doses.

Third period (delayed syphilis). In the different forms of delayed syphilis the total dose should not be less than 15 to 20 million.

Latent syphilis. This diagnosis is made on the basis of various laboratory methods, bone radiography, and minute examinations of the various systems, particularly the heart and vessels. Prognosis is reserved in absolute latent syphilis (serological examinations negative, no clinical signs, test with luetine positive) and in partial latent syphilis (serological examinations positive, no clinical signs). This is why the total dose should not be less than 15 million. Professor Lapierre estimates the dosage on the basis of response to the test with luetine.

Cardiovascular syphilis. In these cases (simple mesaortitis, aneurism, aortic insufficiency, mixed forms, and other affections of the vessels) the treatment should not comprise less than 12 million and should start with small doses (200,000–300,000). This treatment should be applied with care and in the clinic. In the majority of these cases one adds iodine, bismuth, and cyanide of mercury (0.01 a day, 30 to 40 injections). This mixed treatment seems to us the more logical way.

Neurosyphilis. In the three big groups of neurosyphilis (meningo-vascular, parenchymatous syphilis, asymptomatic neurosyphilis) the treatment should be more than 20 to 30 million units. One must add to the penicillin cure, pyretotherapy, bismuth, iodine, and cyanide of mercury.

Ocular syphilis. Here the treatment should be not less than 15 million, and in accordance with each case should include iodine, and above all cyanide of mercury.

Syphilis of the other internal organs. In these cases one can employ the system used for cardiovascular syphilis.

Prenatal syphilis. The penicillin should be maintained at a constant level in the blood of the mother and child. Two to 3 injections weekly, each of less than 600,000 units up to a total of 10 to 12 million.

As the only treponematose in our country is syphilis, we will not consider the others.

Recurrence and resistance with treatment. Recurrence and resistance in the case of syphilis treatment with penicillin do occur in a small percentage of cases. This happens above all in cases of treatment being incomplete or spaced out. However in the case of a woman of average age and in those of two men that showed signs of secondary syphilis, the treatment was ineffective although it was completely carried through; that is to say a series of injections of 25 million of penicillin (benzathine penicillin G). In these three cases there was no clinical retrogression, nor serological. A classical treatment (arsenic and bismuth) was started.

Post-treatment checks. The treponemicidal power of penicillin is more potent than any other antisyphilitic product. According to our results the treponema disappears 3 to 6 hours after the first injection. We check our patients with serological reactions (Kolmer-Wassermann and Kahn) every three months for two years. Serological negativity usually begins in the first trimester and is complete in the twelfth month at the maximum. In 25% of the cases one has to await the second year to attain this result. In addition we do a lumbar puncture every 6 months and we employ TPI when we judge it necessary.

Signs of toxicity found during the treatment. In 95% of the cases there is a strong pyretic reaction 3 to 6 hours after the injection. Urticaria and exfoliating dermatitis are very rare. We have never encountered cerebral signs. Signs of anaphylaxis due to the procaine are found above all among the young adults and children. Sensitivity to penicillin is very rare.

Conclusion

In spite of the 20 years that have passed since the first application of penicillin in syphilography, it is still too early for the last word to be said on this mode of treatment. The divergences of opinion of the different authors

prevent us from elaborating a standard scheme of treatment. The different preparations put on sale every day raise fresh hopes, but the ideal product is still to be found. The results that we obtained in 1946 with 2.5 million units with amorphous penicillin are at present obtained with bigger doses of the other products. These doses are fixed in accordance with the peculiarities of each case. They should never be less than 15 million. The ease of injection, the weak toxicity as compared with the other antisyphilitic products, and its high treponemicide potency make this product one of our most powerful aids.

Treatment of Early Infectious Syphilis With Benzathine Penicillin G

LESLIE NICHOLAS, M.D.

ABSTRACT

A total of 120 patients suffering from early infectious syphilis (40 with primary seroreactive and 80 with the secondary type) were treated with a single injection of 2,400,000 units benzathine penicillin G.

The seronegativity rate at the end of 10 months was 100 percent for those with seroreactive primary syphilis, 55 percent for the patients with the secondary disease, and 64 percent for the combined group. At 18 to 21 months 75 percent of the patients with secondary syphilis and 79 percent of the total group were seronnreactive.

The cumulative retreatment rate 11 to 15 months after the initial treatment with a single injection of 2,400,000 units benzathine penicillin G was 9.8 percent.

Testing with the RPCF showed 83.7 percent agreement with the VDRL and significant differences between the two tests in only 2.3 percent.

Benzathine penicillin G should be administered as early as possible since the seroresponse in primary syphilis appears to be so much better than in secondary syphilis.

SOMMAIRE

On a traité d'une seule injection de 2.400.000 unités de pénicilline benzathine G un total de 120 malades souffrant de syphilis infectieuse au premier stage de son dércloppement (40 avaient la syphilis séro-réactive primaire et 80 la syphilis séro-réactive secondaire).

Au bout de dix mois, le taux de séro-négativité étaient de 100 pour cent pour ceux dont la syphilis était séro-réactive primaire, de 55 pour cent pour les malades atteints de la maladie secondaire, et de 64 pour cent pour le groupe combiné. Pendant une période allant du 18e au 21e mois, 75 pour cent des malades atteints de syphilis secondaire et 79 pour cent du groupe total n'ont manifesté aucune séro-réactivité.

Le taux cumulatif des personnes soumises à un second traitement, de onze à quinze mois après le premier, également d'une seule injection de 2.400.000 unités de pénicilline benzathine G, était de 9,8 pour cent.

Des essais au RPCF ont montré un accord de 83,7 pour cent avec le VDRL, et des différences significatives entre les deux essais ne se sont manifestées que dans 2,3 pour cent des cas.

La pénicilline benzathine G doit être administrée aussitôt que possible puisque la réaction du sérum dans la syphilis primaire semble être de beaucoup meilleure que dans la syphilis secondaire.

RESUMEN

Un total de 120 pacientes que sufren de sifilis infecciosa en estado incipiente (40 con seroactivo primario y 80 con el tipo secundario) fueron tratados con una sola inyección de 2,400,000 unidades de penicilina G benzatina.

El promedio de seronegatividad al cabo de los 10 meses era de 100 por ciento en los pacientes que tenian sifilis primaria seroactiva; 55 por ciento en los pacientes con enfermedades secundarias; y el 64 por ciento en el grupo mixto. A los dieciocho o veintiún meses el 75 por ciento de los pacientes con sifilis secundaria y el 79 por ciento de un grupo total fueron serorcactivos.

La proporción del tratamiento cumulativo de once a quince meses después del tratamiento inicial con una sola inyección de penicilina de 2,400,000 unidades de penicilina G bezantina fué de 9.8 por ciento.

Las pruebas con RPCF demostraron un 83.7 por ciento de correlación con la VDRL y las diferencias importantes entre los dos pruebas solamente 2.3 por ciento.

La penicilina G con benzatina debe ser administrada tan pronto como sea posible porque la serorcacción en la sífilis primaria aparece ser superior a la reacción en la sífilis secundaria.

SINCE 1954, when Smith and co-workers (*1*) described N,N'dibenzylethylenediamine dipenicillin G (benzathine penicillin G in aqueous suspension[1]) as effective treatment for early infectious syphilis, a minimum of supportive or corroborative evidence has been published (*2*). The original investigators (*1*) observed 127

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[1] Bicillin ® (Benzathine Penicillin G), Wyeth Laboratories.

patients and reported that the sero-negativity rate was 90% 12 to 15 months after a single injection of 2,500,000 units of benzathine penicillin G. At the end of six months 81% of the patients with sero-reactive primary syphilis, 65% of those with secondary syphilis, and 73% of the total number had reached non-reactivity.

A second series totaling 196 cases was reported by Shafer and Smith (*3*). This group comprised 175 previously untreated patients with darkfield—positive primary and secondary syphilis, and 21 who had received prior anti-syphilitic therapy. The same treatment schedule was employed as in the original study (*1*) and the maximum period of observation was 21 months. Of the 175 patients untreated previously, 33 had sero-negative primary, 38 had sero-reactive primary, and 104 had secondary syphilis. Of their 38 cases of sero-positive primary syphilis, 65% had become sero-non-reactive the third month after treatment, 80% were sero-negative by the sixth month, and at the end of one year, 1 case was still sero-reactive. Thus 2,500,000 units benzathine penicillin G was considered 96.6% effective in sero-reactive primary syphilis. Of the 104 cases of secondary syphilis similarly treated, 25% were sero-negative at the third month after treatment, 60% were sero-negative at the sixth month, and 83% were sero-negative at the twelfth month after treatment. Six patients remained sero-reactive more than one year; 2 of these later became sero-non-reactive.

After further observation and extension of this material, Smith and his group (*4*) found that 96% of 67 patients with sero-reactive primary syphilis were sero-negative two years subsequent to one injection of 2,500,000 units of benzathine penicillin G, and 94.5% of 155 cases of secondary syphilis were sero-non-reactive two years after the same treatment.

Except for the recommendation, in 1956, by the Council on Pharmacy and Chemistry of the American Medical Association (*5*), of a single injection of 2,400,000 units benzathine penicillin G for routine treatment of early symptomatic syphilis, little mention of this form of syphilotherapy appeared in the literature until the two publications by de Graciansky and Grupper (*6*, *7*). They treated a total of 147 patients (11 with sero-negative primary, 57 with sero-reactive primary and 79 with secondary syphilis); various schedules were used and 76 received a single injection of benzathine penicillin G, with results similar to the previous reporters (*1*, *3*, *4*).

Material and Results

One hundred twenty patients suffering from sero-reactive primary and secondary syphilis were chosen from the population of the Social Health Clinic of the Venereal Disease Control Section of the Philadelphia Department of Public Health. Admission to the study was based on two factors: (1) at least one year of serologic follow-up, which included (2) at least one RPCF test.

Each patient received a single injection of 2,400,000 units benzathine penicillin G. Each was sero-reactive at the time of treatment. Following therapy each was tested serologically at monthly intervals for one year; and at three-month intervals during the second year if the individual continued to be sero-reactive. Both the Kolmer and VDRL tests were used for routine serologic testing. However, the Kolmer test was occasionally omitted, so the VDRL alone was used for statistical evaluation. Calculations were performed according to method 1 of Iskrant and co-workers (*8*).

The serologic response of these 120 patients is shown in Table 1. The group included 40 patients with sero-reactive primary and 80 patients with secondary syphilis. Patients with sero-negative primary syphilis were omitted from the study because we were interested principally in the serologic response following therapy.

At the end of six months 84% of the patients with sero-reactive primary syphilis, 50% of those with secondary syphilis, and 58% of the total had reached sero-negativity.

All of the patients with sero-reactive primary syphilis had reverted to sero-negativity at the end of the tenth month, at which time only 55% with secondary syphilis and 64% of the combined group were sero-negative.

Between the eighteenth and twenty-first month 75% of the patients with secondary syphilis and 79% of the total group were sero-non-reactive.

During the period of observation only 5 patients were given additional treatment—a cumulative retreatment rate of 9.8%. These patients were retreated between the eleventh and fifteenth month. One was retreated because of probable reinfection. The other 4 were retreated when we decided to administer a second injection of benzathine penicillin G to all patients with early infectious syphilis who were still sero-reactive one year after the original treatment. No case of infectious or mucocutaneous relapse was recognized.

Table 1. Results of a single injection of 2,400,000 units benzathine penicillin G in the treatment of early infectious syphilis

Observation months	Total cases retreated			Clinically negative				Total
				Seroreactive		Seronoreactive		
	Number	Percent	Cum. percent	Number	Percent	Number	Percent	
Seroreactive primary syphilis								
0–1				35	87. 5	5	12. 5	40
1–2				27	67. 5	13	32. 5	40
2–3				19	51. 4	18	48. 6	37
3–4				11	33. 3	22	66. 7	33
4–5				7	25. 0	21	75. 0	28
5–6				4	17. 4	19	82. 6	23
6–7				3	15. 8	16	84. 2	19
7–8				3	18. 8	13	81. 2	16
8–9				2	13. 3	13	86. 7	15
9–10				1	7. 1	13	92. 9	14
10–11						14	100. 0	14
11–12						10	100. 0	10
12–15						7	100. 0	7
15–18						2	100. 0	2
18–21						1	100. 0	1
21–24						1	100. 0	1
Secondary syphilis								
0–1				79	98. 7	1	1. 3	80
1–2				73	91. 3	7	8. 8	80
2–3				70	87. 5	10	12. 5	80
3–4				52	65. 8	27	34. 2	79
4–5				44	59. 5	30	40. 5	74
5–6				38	55. 9	30	44. 1	68
6–7				30	50. 0	30	50. 0	60
7–8				27	47. 4	30	52. 6	57
8–9				24	43. 6	31	56. 4	55
9–10				21	44. 7	26	55. 3	47
10–11	1	2. 3	2. 3	19	43. 2	24	54. 5	44
11–12	3	7. 2	9. 5	16	38. 1	22	52. 4	42
12–15	1	2. 7	12. 2	14	37. 3	19	50. 6	38
15–18			12. 2	5	23. 1	14	64. 8	22
18–21			12. 2	1	12. 5	6	75. 4	8
21–24			12. 2	1	29. 3	2	58. 6	3
Total primary and secondary syphilis								
0–1				114	95. 0	6	5. 0	120
1–2				100	83. 3	20	16. 7	120
2–3				89	76. 1	28	23. 9	117
3–4				63	56. 3	49	43. 8	112
4–5				51	50. 0	51	50. 0	102
5–6				42	46. 1	49	53. 8	91
6–7				33	41. 8	46	58. 2	79
7–8				30	41. 1	43	58. 9	73
8–9				26	37. 1	44	62. 9	70
9–10				22	36. 1	39	63. 9	61
10–11	1	1. 7	1. 7	19	32. 8	38	65. 5	58
11–12	3	5. 8	7. 5	16	30. 8	32	61. 7	52
12–15	1	2. 3	9. 8	14	31. 6	26	58. 7	44
15–18			9. 8	5	21. 5	16	68. 8	23
18–21			9. 8	1	11. 3	7	79. 0	9
21–24			9. 8	1	22. 6	3	67. 7	4

RPCF Test

Of the very many papers dealing with comparative statistics based on the various serologic tests for syphilis, I will cite only Bissett and co-workers (*9*) who explored the application of the RPCF test in the sero-diagnosis of the disease in the public health laboratory. They evaluated their results in four diagnostic groups, one of which was to determine agreement between VDRL and RPCF. In this reactive group, comparison on the VDRL and RPCF tests showed agreement in 66%, or 120 of 182 specimens, if reactive and weakly reactive results are grouped, while 62 serums gave discrepant results between the VDRL and RPCF tests.

Originally, in the follow-up of the earlier cases in our series, when the VDRL became negative, an RPCF was ordered for the return visit. Patient co-operation, however, tended to be poor. Many patients presented themselves at the clinic intermittently and in some cases several months elapsed before a blood specimen could be obtained for an RPCF test. Later in the study the RPCF was ordered as a routine every month or every second month. Of the 40 patients treated for sero-reactive primary syphilis, only 2 were lost from follow-up with a reactive RPCF, and each of these exhibited a plus-1 reaction, one at the eleventh and the other at the thirteenth month. Thus, 38 of the patients converted to sero-non-reactivity with the RPCF test. Of the 80 patients with secondary syphilis, 50% were RPCF-non-reactive at the end of one year, and 75% at the end of two years.

Since consistency in ordering the RPCF test was impossible, determination of exact time of conversion to sero-negativity was inaccurate. Comparison of the VDRL and RPCF tests was possible in 172 situations (Table 2), in which both tests were performed on the same specimens. During the course of post-treatment observation, the RPCF tests averaged 1.2 per patient with primary syphilis, and 1.6 per patient with secondary syphilis. The results of these tests were studied month by month for agreement with the VDRL.

In 46 instances both tests were reactive and in 98 instances both were non-reactive. Thus there was complete agreement between the two tests in 83.7%. In the 28 instances in which differences occurred, 19 were reactive to the VDRL and non-reactive to the RPCF. In only 9 instances did differences occur in the other direction. Furthermore, most of the disagreement between the results of the two tests occurred on borderline specimens. When the VDRL was non-reactive and the RPCF reactive, in 7 of the 9 instances the RPCF was 2-plus or less. Of the 19 instances in which the RPCF was non-reactive and the VDRL reactive, the result of the VDRL in 17 was 1 dil or less.

Actually, disagreement might have been termed significant in only 4 instances. This represents discrepancy between the two tests on 2.3% of the specimens on which both tests were performed.

Summary and Conclusions

1. A total of 120 patients suffering from early infectious syphilis (40 with primary sero-reactive and 80 with secondary syphilis) were treated with a single injection of 2,400,000 units benzathine penicillin G.

2. The sero-negativity rate at the end of 10 months was 100% for those with sero-reactive primary syphilis, 55% for the patients with secondary syphilis, and 64% for the combined group. At 18 to 21 months 75% of the patients with secondary syphilis and 79% of the total group were sero-non-reactive.

3. The cumulative retreatment rate 11 to 15 months after the initial treatment with a single injection of 2,400,000 units benzathine penicillin G was 9.8%.

4. Testing with the RPCF showed 83.7% complete agreement with the VDRL and significant differences between the two tests in only 2.3%.

Acknowledgement

Dr. John W. Lentz, Chief of the Venereal Disease Control Section, Department of Public Health, Philadelphia, Pennsylvania, granted permission for use of this clinical material.

Statistical calculations were performed by Mrs. Eleanor V. Price, Statistician, Venereal Disease Branch, Communicable Disease Center, U.S. Public Health Service, Atlanta, Georgia.

Table 2. Comparison of results of VDRL and RPCF after treatment

Month of Observation	Primary					Secondary					Totals				
	VDRL RPCF+	VDRL− RPCF+	VDRL+ RPCF−	VDRL RPCF−	Total primary	VDRL RPCF+	VDRL− RPCF+	VDRL+ RPCF−	VDRL RPCF−	Total secondary	VDRL RPCF+	VDRL− RPCF+	VDRL+ RPCF−	VDRL RPCF−	Total
1	2		1		3	2				2	4		1		5
2			2	3	5	2		1		3	2		3	3	8
3	1		1	4	6	2		1	2	5	3		2	6	11
4				4	4	2		1	4	7	2		1	8	11
5				5	5	4			8	12	4			13	17
6				4	4	3		1	7	11	3		1	11	15
7			1	4	5	2		2	3	7	2		3	7	12
8				1	1	1	1	1	2	5	1	1	1	3	6
9						3	1		9	13	3	1		9	13
10						3			3	6	3			3	6
11		1		3	4	4		1	2	7	4	1	1	5	11
12				3	3	4	1		2	7	4	1		5	10
13		1		1	2	3		2	1	6	3	1	2	2	8
14				2	2			1	3	4			1	5	6
15				1	1	3		1	2	6	3		1	3	7
16						1			[1] 6	7	1			[1] 6	7
17						[1] 1	1		2	4	[1] 1	1		2	4
18				1	1	1	1	1	1	4	1	1	1	2	5
19							2		1	3		2		1	3
20						[1] 1				1	[1] 1				1
21				1	1				1	1				2	2
22						[1] 1				1	[1] 1				1
23									1	1				1	1
24								1	1	2			1	1	2
Total	3	2	5	37	47	43	7	14	61	125	46	9	19	98	172

[1] These 4 tests were done after patients were retreated.

Agreement = 83.7% *Significant discrepancy*

VDRL− RPCF+ = 9 (7 were 2+ or less in RPCF) = 2 (VDRL− RPCF 4+)

VDRL+ RPCF− = 19 (17 were either WR or RI in VDRL) = 2 (VDRL R5 and R2.5) (2.3%)

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Chloromycetin—A Suggested Alternate for Penicillin in Case of Penicillin Allergy

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ABSTRACT

The need for an alternate to penicillin and the lead given by chloromycetin in the treatment of Treponematosis are discussed. The results of a therapeutic trial with chloromycetin administered to a score of women, pregnant at the same time as exhibiting evidence of early syphilis, are presented. The immediate therapeutic response in 20 of them was highly satisfactory. No evidence of toxicity was observed.

An attempt at follow-up of the same group about two years later revealed, on repeat examination of the 7 available patients, satisfactory physical and laboratory status. Post-treatment babies born at the end of the full term did not exhibit any manifestations of prenatal syphilis in them during the surveillance period.

Since chloromycetin is useful also in the management of venereal diseases other than syphilis, besides certain non-venereal diseases that may co-exist with syphilis, the therapeutic action of chloromycetin is worthy of consideration when one is in search of an alternate to penicillin, under special circumstances.

SOMMAIRE

La nécessité de trouver un succédané à la pénicilline ainsi que la voie ouverte par la chloromycétine dans le traitement de la Tréponématose sont deux sujets de discussion. Les résultats d'une thérapeutique expérimentale faite en administrant de la chloromycétine à une vingtaine de femmes, enceintes en même temps qu'elles montraient des signes évidents de début de syphilis, sont présentés. Le résultat immédiat du traitement, dans les vingt cas, fut hautement satisfaisant. Aucun signe de toxicité ne fut constaté.

On s'efforça de suivre de près le même groupe et, environ deux ans plus tard, un nouvel examen des sept malades disponibles révéla un état physique et des résultats de laboratoire satisfaisants. Les bébés, nés à terme après le traitement, ne manifestèrent, au cours de la période d'observation, aucun signe de syphilis prénatale.

Depuis que la chloromycétine sert aussi au traitement de maladies vénériennes autres que la syphilis, ainsi qu'à celui de certaines autres maladies non-vénériennes qui peuvent co-exister avec la syphilis, la chloromycétine mérite d'être prise en considération quand on est en quête d'un succédané de la pénicilline, dans des cas particuliers.

RESUMEN

Se ha discutido la necesidad de un sustituto a la penicilina y la ventaja dada a la cloromicetina en el tratamiento de la treponematosis. Se han presentado resultados de una prueba terapéutica con cloromicetina administrada a un número de mujeres, en cinta, al mismo tiempo que evidenciaban una sífilis incipiente. La respuesta terapéutica inmediata en 20 de ellas fué altamente satisfactoria. No se observó ningún estado tóxico.

Un intento para continuar observando al mismo grupo aproximadamente dos años más tarde, demostró un estado satisfactorio físico y así como los buenos resultados de las pruebas de laboratorio en repetidos examines de 7 pacientes disponibles. Bebitos nacidos posteriormente al tratamiento de sus madres no presentarion ninguna manifestación de sífilis pre-natal durante el período de observación.

La cloromicetina es tambien útil al ser administrada para otras enfermedades venéreas, aparte de la sífilis; además se debe considerar la cloromicetina para combatir algunas enfermedades venéreas que puedan coexistir junto con la sífilis cuando se está buscando una droga sustituta, a la penicilina bajo circunstancias especiales.

THE NEED FOR a newer antibiotic in the management of treponematoses justifiably arises when what has already been in use for a statistically significant period of time is found deficient in any of the necessary qualities for a sovereign remedy, which are:

1. That the chosen medicament shall be easily available.
2. That it shall be cheap and within the purchasing capacity of patients of the stratum drawing a low income; and the cost of its procurement by any governmental agency for large scale distribution to the affected population is allowable by the audit.

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3. That it shall be easily administrable preferably by the needle, since the advocacy of an oral remedy for a communicable disease of venereal origin is not in line with the principles enunciated by the Department of Preventive Medicine and Hygiene.

4. That the total duration of treatment with the express purpose of reducing infectivity and remedying the illness is minimum—preferably a single dose therapy.

5. That the administration of the drug shall not invoke any sign of toxicity, be it minor or major, immediate or remote, nor even affect adversely the suckling if the patient under treatment were a mother under the influence of the drug.

6. Finally, that the therapeutic efficacy particularly in the management of treponematoses under discussion shall be satisfactory, in that the *Treponema pallidum* shall disappear from the surface lesions, if any, in record time; the clinical lesions themselves shall involute within an acceptable period; and the reactive serology reverse speedily *pari passu*; in addition, the illness after standard treatment shall not recur in any form, clinical or serologic.

Judged by such stringent yardsticks, the antibiotic penicillin discovered by Sir Alexander Fleming, and first introduced in syphilotherapy by the late Dr. John Mahoney of U.S.A., deservedly, is the best specific for Treponematoses.

Penicillin Hypersensitivity

In recent times, however, the pre-eminence of penicillin, acclaimed to be the queen of drugs, has been rudely shaken by the then unforeseen and now unpredictable hypersensitivity reactions of the antigen-antibody character, associated with its administration.

Had penicillin, like the arsenic of old, been specific just for syphilis alone and been restricted in its therapeutic spectrum, it is conjectured that penicillin would have maintained its esteemed position. But as it is, it is common knowledge that this antibiotic has been administered to humans for very many ills, more commonly, not only in the form of a solution or a suspension, with a needle, but in other widely diverse ways as insufflations, lozenges, tablets, creams, ointments, etc.—modes of administration that predispose to acquisition of penicillin allergy. This has happened so fairly frequently in recent years that world-wide attention has been drawn to the occurrence of penicillin hypersensitivity. Mild to moderate and even serious fatal hypersensitivity reactions have been imposing a frightful restraint on the practising physician compelling him at times to fail in his duty to deliver the penicillin to a patient even when its administration is very much indicated.

What is worse, the person that is allergic to penicillin remains so for an indefinite period. As is depicted in a pictorial propaganda leaflet of the United States Public Health Service, that an elephant exhibits its vengeance on the person that had hurt it long ago, even when the insulter appears years later, likewise does the skin of a patient remind the sufferer of the forgotten episode of the penicillin induced allergic status.

Case reports are not wanting within the experience of the medical team at the Institute of Venereology, Madras, to confirm the reference to recurrence type of penicillin allergy in humans in various forms varying from cheiropompholyx to serious exfoliative dermatitis, reinducted with penicillin administration, unawares, at time intervals extending to even years.

Need for Alternative

This single ugly trait alone has cost penicillin its prestige. When at a time the therapy of treponematoses has been weaned out of the somewhat hazardous metallochemo-therapeutic armamentarium, this appears as an enigma to the physician in charge of syphilis patients today, such that for fear of suspicion of past penicillin allergy and the possibility of its recurrence, he cannot employ penicillin. Under this circumstance, the need for an alternate to penicillin becomes a desideratum. This exigency assumes greater importance when it is realized that there is no sure and dependable device for determining the existence or otherwise of penicillin hypersensitivity in a given case of syphilis before commencing treatment. The prick-test, the intracutaneous test with penicillin and even the Prausnitz Kustner reaction have not helped him to find out the penicillin hypersensitivity in an individual.

That one need not so much as be dazed to discover the hypersensitive individual, simply because adrenaline, antihistamines and aminophylin and other helpful adjuvants like steroids and penicillinase are at hand to combat such emergencies, should they arise, is not an argument that is tenable, for fatal reactions of the anaphylactoid type have occurred so speedily as within less than the short time required for

assembling a syringe to fill it up with adrenaline.

Another reason why an alternate to penicillin is welcome in the Tropics, aside from the risk alluded to, is that in the practice of venereology one often encounters not syphilis and gonorrhoea alone in the same person at the same time. Casanovas of the Indian type carry many another venereal disease as well, not amenable to penicillin treatment, besides being victims to several concurrent non-venereal affections of the genitalia known to be insensitive to penicillin. It is in this context that chloromycetin and other similar broad spectrum antibiotics become a boon to the puzzled physicians.

Experience With Chloromycetin

Skipping over the details of the pharmacology of chloromycetin for brevity, it may be recalled that chloromycetin has been successfully used for several years in the management of several different illnesses, particularly of the category of enteric group of fevers. At the Institute of Venereology, Madras, India, chloromycetin has stood the test of time proving its worth in the management of gonorrhea, chancroid and the twin granulomas of venereal origin. As far as syphilis is concerned, a special therapeutic trial with chloromycetin was undertaken to assess its worth in the management of syphilis in women during pregnancy from the standpoint of determination of the outcome of therapy in the first generation syphilis and the place of chloromycetin as a prophylactic in the second generation syphilis.

A group of women manifesting evidence of early syphilis and of pregnancy were subjected to oral chloromycetin therapy, after carefully recording the essential details respectively of the pathologic and physiologic status of the patients. The enceinte syphilitic women coming under our purview were each given 500 mg. chloromycetin in two capsules, every six hours round the clock for 10 days, totalling 80 capsules or 20 G. The total number of women so treated was 23. Out of this number, 4 did not complete the therapy and were excluded from our study. Among the rest of the patients, the clinical lesions responded promptly during the period of observation. There was no single episode of any toxicity worth recording.

It is about two years since the therapeutic trial with chloromycetin in the management of pregnant women with early syphilis had been undertaken. An attempt has recently been made to fetch the 19 that had completed the therapy, for review. It has been difficult to get all of them, as a few of them were not traceable at the addresses given us by them; still others had moved out to muffassal stations. Yet, through a vigorous search by the two lady social workers of the Institute, 9 out of the 19 treated cases were available for assessment vide crossed discs. The treated women with their offspring following the course of chloromycetin therapy, and the respective sex-partners, whenever obtainable, were photographed. A careful physical check up and laboratory studies inclusive of Roentgen investigations, when necessary were made. Up till date the review revealed satisfactory clinical and serological results among the short series of followed-up cases, indicating that in chloromycetin there is a reliable alternate to penicillin *and* prophylactic against second generation syphilis. This enquiry is in progress.

Summary

1. The need for an alternate to penicillin and the lead given by chloromycetin in the treatment of Treponematoses are discussed. The results of a therapeutic trial with chloromycetin administered to women, pregnant at the same time as exhibiting evidence of early syphilis, are presented. The immediate therapeutic response in 19 of them was highly satisfactory. No evidence of toxicity was observed.

2. An attempt at follow-up of the same group about two years later revealed, on repeat examination of an available 9 patients, satisfactory physical and laboratory status. Post-treatment babies (chloromycetin babies) born at the end of the full term did not exhibit any manifestations of pre-natal syphilis in them during the surveillance period.

3. Since chloromycetin is useful also in the management of venereal diseases other than syphilis besides certain non-venereal diseases that may co-exist with syphilis, the panacea-like action of chloromycetin is worthy of consideration when one is in search of an alternate to penicillin, under special circumstances.

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Treatment of Early Syphilis and Acute Gonorrhea in Males With Synnematin B

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ABSTRACT

Four cases of early syphilis were treated with synnematin B. All responded with Herxheimer reactions, healing of lesions, and significant drops in serological titers. Followup has been too brief to determine whether there will be relapse, but the results thus far are encouraging.

A single injection of 500,000 units synnematin B was used to treat each of 216 cases of acute gonorrhea in males. Thirteen percent had recurrence of positive laboratory findings or symptoms within 30 days, of which 6.9 percent were considered to be treatment failures. In a previous study, otherwise identical to this one except that the dose of synnematin B was 300,000 units, there was 13 percent recurrence in 30 days, of which 4 percent were considered to be treatment failures. There does not seem to be any advantage of the larger dose over 300,000 units of synnematin B.

No cases of syphilis developed after synnematin B treatment of patients with gonorrhea.

Synnematin B, in the doses employed, is less effective in the treatment of gonorrhea than is 1,200,000 units of procaine penicillin in aluminum monostearate.

Synnematin B is a drug which appears to fill the need for a safe injectable antibiotic that is effective in the treatment of gonorrhea, prophylactic against incubating syphilis, and for the present, free of allergic reactions.

SOMMAIRE

Quatre cas de syphilis à ses débuts furent traités par la synnematine B.[1] Tous y répondirent par des réactions de Herxheimer, la cicatrisation des lésions et une baisse importante des titres du sérum. On n'a pas pu les suivre assez longtemps pour savoir s'il y aura des rechutes, mais jusqu'ici les résultats sont encourageants.

Une injection unique de 500.000 unités de synnematine B a été employée dans le traitement de 216 cas de blennoragie aiguë chez des hommes. Treize pour cent eurent une récidive de symptômes ou de résultats d'analyse positifs dans les 30 jours qui suivirent, et 6,9 pour cent d'entre eux furent considérés comme des échecs du traitement. Dans une étude antérieure, identique à celle-ci sauf que la dose de synnematine B était de 300.000 unités, il y avait eu 13 pour cent de récidives en 30 jours, dont 4 pour cent considérées comme des échecs du traitement. Il ne semble y avoir aucun avantage à employer la dose supérieure à 300.000 unités de synnematine B.

Aucun cas de syphilis n'est apparu chez les malades qui avaient été traités à la synnematine B pour blennoragie.

La synnematine B aux doses employées est moins efficace dans le traitement de la blennoragie que 1.200.000 unités de pénicilline-procaïne dans le monostearate d'aluminium.

La synnematine B est un médicament qui semble répondre aux besoins d'un antibiotique injectable sans danger, efficace dans le traitement de la blennoragie, prophylactique contre la syphilis à l'état d'incubation, et jusqu'ici ne provoquant pas de réactions allergiques.

RESUMEN

Cuatro caso de sifilis incipiente fueron tratados con Sinematin B. Todos respondieron con reacciones de Herxheimer, curación de las lesiones, y las bajas importantes de las pruebas serológicas. La vigilancia de estos casos ha sido muy corta para poder determinar si habra una recaida, pero los resultados hasta ahora han sido atentadores.

Una sola inyección de 500,000 unidades de Sinematin B fué usada para tratar a cada uno de los 216 casos de gonorrea aguda en los hombres. El trece por ciento tuvo una reactivación positiva en los examenes de laboratorio o sintomas dentro de los 30 dias, de los cuales el 6.9 por ciento se consideraron ser malogros en el tratamiento. En un estudio previo, de otro modo idéntico a este, excepto que la dosis de Sinematin B era de 300,000 unidades hubo un 13 por ciento de recaidas en 30 días de las cuales 4 por ciento se consideró ser malogros en el tratamiento. No parece haber ninguna ventaja en las dosis mayores de 300,000 unidades de la Sinematin B.

No se desarrollo ningun caso de sifilis después del tratamiento de Sinematin B a los pacientes con gonorrea.

La Sinematin B, en las dosis administradas, es menos efectiva en el tratamiento de la gonorrea que 1,200,000 unidades de penicilina con procaina en monostearato de aluminio.

La Sinematin B es una droga que parece llenar las necesidades de un antibiótico inyectable seguro que es efectivo en el tratamiento de la gonorrea, profiláctico contra la sífilis que se esta incubando, y en el momento, libre de reacciones alérgicas.

[1] *Synnematine B = céphalosporine N (Note de la traductrice).*

THE INCREASING NUMBER of persons sensitive to penicillin now clearly constitutes a major and rapidly growing problem in effective venereal disease control. A lesser problem is the reported increase in the percentage of strains of the gonococcus that are relatively resistant to penicillin. There is, therefore, need for continuous study of new drugs that are effective in the treatment of syphilis and gonorrhea.

Synnematin B

Synnematin B was described by Gottshall, *et al.*, in 1951 (*1*). It is an antibiotic produced by the mold Cephalosporium salmosynnematum, strain 3590A, and it is related to penicillin chemically in some of its pharmacological properties (*2*). It is inactivated by penicillinase (*3*), and has an extremely low toxicity; doses of 5 gm. per kilogram of body weight in experimental animals have been given without recognizable side effects. Thus far no allergic reaction has been reported in humans due to the clinical use of the drug, and attempts to sensitize laboratory animals have failed. Berryman and Fisherman have shown that serum reagins to penicillin G or V do not react with synnematin B (*4*). The author has treated 28 persons with good histories of penicillin sensitivity with no adverse reaction.

Synnematin B is active *in vitro* in low concentrations against many gram-negative bacteria. These include Brucella, Clostridia, Pasteurella, Proteus (mirabilis species only), Salmonella and Vibrio. Gram-positive bacteria shown to be susceptible are diplococci and streptococci (hemolyticus) (*3, 5, 6*).

Wheeler and Curtis reported the successful treatment of a case of primary syphilis in 1957 (*7*). The author reported the treatment of a case of secondary syphilis in 1959 (*8*), and of 132 cases of gonorrhea in 1961 (*11*). Other diseases treated with synnematin B are typhoid fever and salmonellosis due to S. reading (*9, 10*).

The synnematin B used in this study was supplied through the courtesy of George H. Berryman, M.D., of Abbott Laboratories, North Chicago, Illinois, and G. D. Cummings, M.D., Director, Division of Laboratories, State Health Department, Lansing, Michigan.

Early Syphilis Treated With Synnematin B

This is a report of four cases of early syphilis treated with synnematin B.

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Case No. 1: 383797. Diagnosis: secondary syphilis. A 25 year old white male seen by Dr. David Kahn of Lansing, Michigan. He had a darkfield positive penile lesion, an eruption of the palms and soles, alopecia, and a sore throat. He was treated, starting January 28, 1958, with synnematin B 300,000 units I.M. qid for 3 days, for a total of 3,600,000 units. His Kahn titer fell from 1:32 at the time of treatment to 1:2 in September, 1958. A spinal before treatment was negative. All symptoms disappeared shortly after treatment. In December, 1958 his Kahn titer rose to 1:8 and remained there on repeat in February, 1959. He was retreated at Receiving Hospital, Detroit, in February, 1959 with 3,600,000 units synnematin B, employing the same treatment schedule as in 1958. There had been no return of symptoms and a second spinal in August of 1958 was negative. His Kahn fell gradually to negative when last seen in January of 1962, at which time he was still symptom-free, and the Kolmer and RPCF were positive.

Case No. 2: 366931. Diagnosis: secondary syphilis. An 18 year old colored male seen by the author. He had a darkfield positive generalized macular eruption, an indurated penile ulcer, a Kahn test positive 1:16, and generalized adenopathy. He was treated at Receiving Hospital, Detroit, in January, 1959, with synnematin B 300,000 units I.M. qid for 3 days for a total of 3,600,000 units. The RPCF was positive at the time of treatment. He was last seen in May of 1959, at which time a Kahn test was positive 1:1 and all symptoms had disappeared.

Case No. 3: 396982. Diagnosis: primary syphilis. A 35 year old colored male seen by the author. Physical examination showed an indurated oval ulcer on the prepuce with enlarged inguinal and axillary nodes. The Kahn test was positive 1:4, VDRL 1:16, RPCF positive, and darkfield from the ulcer positive. He was treated at the United States Public Health Service Hospital, Detroit, in September, 1961 with synnematin B 250,000 units I.M. qid for 6 days for a total of 6,000,000 units. He was not seen again until April, 1962, at which time there were no physical signs of syphilis, the spinal was negative, and a Kahn and VDRL were negative. The RPCF was positive.

Case No. 4: 399116. Diagnosis: secondary syphilis. A 24 year old colored male seen by the author. Physical examination showed a macular generalized eruption, generalized adenopathy, one annular indurated lesion on the face, ragged alopecia of the scalp, and many

darkfield positive condyloma lata about the anus. The Kahn was positive 1:32 and the VDRL 1:128. He was treated at the United States Public Health Service Hospital, Detroit, in March of 1962 with synnematin B 250,000 units I.M. qid for 6 days for a total of 6,000,000 units. He was last seen in April of 1962, a month after treatment; all lesions had healed but the generalized adenopathy remained. The Kahn test was positive 1:4 and the VDRL 1:32.

All four patients experienced Herxheimer reactions of varying degrees within 12 hours after the first injection.

Acute Gonorrhea Treated With Synnematin B

Two hundred sixteen cases of acute gonorrhea in males were treated with 500,000 units of synnematin B I.M. in one injection. All had positive smears, cultures, and fermentation tests for gonorrhea. They were asked to return to the clinic at frequent intervals at which times smears and cultures were repeated. Fermentation tests were done on positive cultures. Most of the patients complained of moderate to severe pain on injection. There were no allergic reactions.

Recurrence of Symptoms: It is difficult in some cases to determine whether a recurrence of symptoms is due to treatment failure or reinfection. The criteria employed in this study were as follows: (1) If the patients were symptom-free and had negative smears and cultures 8 days or more after treatment, they were considered to have been reinfected if symptoms recurred. (2) If the patients' symptoms or positive laboratory tests persisted or reappeared within 7 days after treatment, they were considered treatment failures.

All patients were asked to return 2 to 3 days, 9 to 12 days and 28 to 30 days after treatment; most did not keep all three appointments (see Table 1). This study was carried out in a free clinic where experience has shown that the failure of a patient to return for his checkup visits usually means that he is free of symptoms. Those patients with persistence of symptoms almost invariably appear at or before the appointment time. For this reason treatment failures are counted only among those who returned to the clinic and the others are considered cured.

Twenty-eight of the 216 patients (13%) were seen within 30 days after treatment with recurrence of symptoms or positive laboratory tests. Fifteen (6.9%) were considered to be treatment failures. An analysis of the results

Table 1. Recurrence of symptoms after treatment

Total Patients	No recurrence within 30 days after treatment				Recurrence within 30 days after treatment
	Number of days last seen after treatment				
	28 to 30	9 to 12	2 to 4	Not seen	
216	64	43	37	44	28

of followup of these 28 patients is shown in Table 2.

A previous study (*11*) had shown that 8% of male patients treated for acute gonorrhea with 1,200,000 units of procaine penicillin in aluminum monostearate were seen with recurrence within 30 days after treatment. Using the same criteria as above, 1% were considered treatment failures. This study, otherwise similar to the one reported in this paper, also employed 300,000 units of synnematin B in the treatment of each of 112 cases of acute gonorrhea in males, resulting in 13% recurrence within 30 days, of which 4% were considered treatment failures.

No cases of syphilis developed among synnematin-treated patients.

Summary and Conclusions

Four cases of early syphilis were treated with synnematin B. All responded with Herxheimer reactions, healing of lesions, and significant drops in serological titers. Followup has been too brief to determine whether there will be relapse, but the results thus far are encouraging.

A single injection of 500,000 units synnematin B was used to treat each of 216 cases of acute gonorrhea in males. Thirteen percent had recurrence of positive laboratory findings or symptoms within 30 days, of which 6.9% were considered to be treatment failures. In a previous study, otherwise identical to this one except that the dose of synnematin B was 300,000 units, there was 13% recurrence in 30 days, of which 4% were considered to be treatment failures. There does not seem to be any advantage of the larger dose over 300,000 units of synnematin B.

No cases of syphilis developed after synnematin B treatment of patients with gonorrhea. Three hundred thousand units of synnematin B appears to be adequate for prophylaxis of in-

Table 2. Patients seen within 30 days after treatment, with recurrence of symptoms or positive laboratory tests

Patient No.	First revisit			Second revisit			Third revisit			Remarks	Failure or reinfection
	Days after treatment	Smear and/or culture	UD[1]	Days after treatment	Smear and/or culture	UD	Days after treatment	Smear and/or culture	UD		
1	2	—	No	10	+	Yes				UD started 8 days p RX. Wife not treated.	Reinfection.
2	2	—	No	28	+	Yes				UD started 27 days p RX	Do.
3	2	—	No	10	—	No	19	+	Yes	UD started 18 days p RX	Do.
4	3	+	No	7	+	Yes					Failure.
5	2	—	No	11	+	Yes				UD started 6 days p RX	Do.
6	4	—	No	10	—	No	17	+	Yes	UD started 15 days p RX	Reinfection.
7	2	—	Yes	10	+	Yes					Failure.
8	5	—	No	15	—	No	28	+	Yes		Reinfection.
9	10	—	No	21	+	Yes					Do.
10	20	+	Yes							UD started 15 days p RX	Do.
11	4	—	No	11	—	No	17	+	Yes		Do.
12	3	+	No	9	+	No					Failure.
13	4	+	Yes								Do.
14	2	—	No	9	+	Yes				UD started 7 days p RX	Do.
15	2	—	Yes	10	+	Yes					Do.
16	2	—	No	9	+	Yes				UD started 6 days p RX	Do.
17	6	—	No	15	+	Yes				UD started 14 days p RX	Reinfection.
18	6	—	No	14	—	Yes				UD started 12 days p RX	Do.
19	3	—	No	10	+	Yes				UD started 8 days p RX. Wife not treated.	Do.
20	6	+	Yes								Failure.
21	5	+	Yes	12	+	Yes					Do.
22	3	—	No	10	—	No	27	+	Yes	UD started 26 days p RX	Reinfection.
23	4	+	Yes								Failure.
24	4	—	No	5	+	Yes					Do.
25	2	—	No	9	+	Yes				UD started 7 days p RX	Do.
26	5	+	Yes								Do.
27	4	+	Yes								Do.
28	3	—	No	14	+	Yes				UD started 12 days p RX	Reinfection.

[1] UD = Urethral discharge.

cubating syphilis acquired at the same time as gonorrhea.

Synnematin B, in the doses employed, is less effective in the treatment of gonorrhea than is 1,200,000 units of procaine penicillin in aluminum monostearate.

Synnematin B is a drug which appears to fill the need for a safe injectable antibiotic that is effective in the treatment of gonorrhea, prophylactic against incubating syphilis, and for the present, free of allergic reactions.

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Treatment of Neural Deafness With Prednisone

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ABSTRACT

Eighteen patients with neural deafness due to congenital syphilis and 20 patients with neural deafness of miscellaneous origin have been treated with prednisone.

In addition to ear, nose and throat examinations, and appropriate laboratory tests including STS and TPI, the following tests were done before and during therapy: (1) Standard pure tone air and bone conduction audiometry; (2) speech audiometry including measurement of speech-hearing threshold and discrimination score.

The cerebrospinal fluid was negative in all patients in the congenital syphilis group, and 13 had been treated previously with metals or penicillin without preventive value. In nearly every case the most severe difficulty was in discrimination of speech.

The dosage was titrated according to results of audiometry done at each visit.

Eight patients showed definite improvement in discrimination score. In general, improvement in speech-hearing threshold paralleled that in discrimination score.

Prednisone should be administered for one month before being discontinued.

Patients in the non-syphilitic neural deafness group showed less improvement after prednisone therapy.

The process of neural deafness of congenital syphilis is in part inflammatory and susceptible to modification.

SOMMAIRE

Dix-huit malades affligés de surdité neurale à la suite de syphilis congénitale et vingt autres chez lesquels elle avait d'autres origines ont été traités par le prednisone.

En plus de l'examen des oreilles, du nez et de la gorge et des tests de laboratoire appropriés, y compris le test sérologique pour la syphilis et le test de fixation du Treponema pallidum, on a procédé aux tests suivants avant et pendant le traitement: (1) test normal audiométrique de conduction aérienne et osseuse du son pur; (2) audiométrie de la parole, y compris la détermination du seuil auditif de la parole et l'évaluation de la faculté de distinction.

Le liquide céfébrospinal était négatif chez tous les malades du groupe de syphilis congénitale, dont 13 avaient subi antérieurement des traitements aux métaux ou à la pénicilline sans valeur préventive. Dans presque tous les cas, la plus grande difficulté résidait dans la distinction de la parole.

Le dosage était titré suivant les résultats de l'audiométrie pratiquée à chaque visite.

Huit malades présentèrent une amélioration certaine de la faculté de distinction. En général, l'amélioration du seuil auditif de la parole était parallèle à celle de la faculté de distinction.

Il faut administrer le prednisone pendant un mois avant de cesser le traitement.

Les malades du groupe de surdité neurale non syphilitique ne présentèrent pas autant d'amélioration après le traitement au prednisone.

Le processus de surdité neurale de la syphilis congénitale est en partie inflammatoire et sujet à des changements.

RESUMEN

Dieciocho pacientes con sordera neural debida a sífilis congénita y 20 pacientes con sordera de orígenes distintos han sido tratados con prednisone.

Además de los examenes del oído, nariz y garganta y pruebas conveniente de laboratório incluyendo las STS y TPI; las siguientes pruebas fueron hechas antes y después de la terapia; (1) Sonidos de aire puros normales y audiometria conducida por el hueso. (2) Audiometria del habla incluyendo las medidas del habla entrada del oído é incisión descriminativa.

El flúido cerebroespinal fué negativo en todos los pacientes en el grupo de sífilis congénita y 13 habian sido tratados previamente con melates o penicilina sin ningun valor preventivo. En casi todos los casos la dificultad mayor era la deseriminación del habla.

La dosis fue graduada de acuerdo con los resultados de la audiometria realizada en cada visita.

Ocho pacientes manifestaron una mejoria definitiva en la puntuación final de deseriminación.

La Prednisone debe ser administrada durante un mes sin ser descontinuada.

Los pacientes en el grupo de sordera neural, no sifilitica, manifestaron menos mejoria después de la terapia con Prednisone.

El proceso de sordera neural de la sífilis congénita es en parte inflamatorio y susceptible á modificarse.

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SUCCESSFUL THERAPY of neural deafness due to late congenital syphilis has rarely been observed. Relentless progression has been the general experience, despite the use of effective treponemicidal agents.

In 1958 Murphy, Hahn and Haskins (*3*) reported a case of acute exacerbation of neural deafness due to congenital syphilis in which prednisone produced dramatic improvement. Since then, a further 18 patients with neural deafness due to congenital syphilis, and 20 patients with neural deafness of miscellaneous origin have been treated with prednisone. The term "neural" deafness is preferred to eighth nerve deafness as in some cases the pattern of the deafness seems to be more complex than a pure cochlear or peripheral eighth nerve involvement.

In addition to general physical and special ear, nose, and throat examinations, appropriate laboratory tests including STS (and TPI when indicated), the following audiometric tests were done before and frequently during therapy:

1. Standard pure tone air and bone conduction audiometry.

2. Speech audiometry which included the measurement of the speech-hearing threshold and discrimination score.

Patients with Congenital Syphilis

Table 1 shows the age at onset of subjective hearing impairment, duration of this prior to commencement of prednisone, number of pre-treatment audiograms and period over which they were carried out in the 19 patients in this group with congenital syphilis. Table 2 shows the age distribution of the patients at the time treatment was started.

An important feature evident from these tables is that neural deafness in congenital syphilis is commonly a late manifestation, often not occurring until adult life. The diagnosis of congenital syphilis may, therefore, not come readily to mind. Fourteen patients had evidence of past interstitial keratitis. The cerebrospinal fluid was negative in the 18 patients in whom this procedure was done before treatment was started. Six patients received

Table 1. Neural deafness of congenital syphilis: age at onset and duration prior to treatment

Case No.	Subjective deafness		Number of pre-treatment audiograms	Period of pre-treatment audiometry
	Age at onset	Duration		
1	9 years	9 years	4	6 years.
2	36 years	7 months	3	7 months.
3	38 years	2 years	1	2 weeks.
4	Childhood	30+years	1	2 weeks.
5	28 years	20 years	1	1 week.
6	36 years	4 years	1	1 week.
7	33 years	4 years	1	3 weeks.
8	12 years	33 years	5	13 years.
9	18 years	5 years	1	5 weeks.
10	31 years	5 years	1	4 days.
11	25 years	2 years	1	1 day.
12	30 years	6 years	1	2 months.
13	31 years	26 years	2	14 months.
14	Childhood	40+years	2	4 years.
15	20 years	8 years	2	21 months.
16	38 years	2 years	3	3 months.
17	50 years	16 months	3	12 months.
18	20 years	23 years	5	13 years.
19	31 years	4 years	1	2 weeks.

Table 2. Neural deafness of congenital syphilis: age distribution at start of treatment

Age group (year)	Number
18	1
21–30	3
31–40	8
41–50	4
51–57	3

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penicillin at the start of prednisone therapy, the remaining 13 having been treated either with metals or penicillin many years previously without preventive value.

As was shown in Table 1, the time the patient first noticed hearing impairment ranged from 7 months to over 40 years before the start of prednisone without any correlation between duration of symptoms and success of therapy. The impairment was bilateral in all except one case but the process in the two ears was not, as a rule, of identical severity or onset. The onset was gradual in 14 and sudden in 5. There was associated tinnitus in 15 and dizziness, often rotational vertigo, in 12 of these patients. In nearly every case the most severe difficulty was in the discrimination of speech, so that although pure tones could with sufficient amplification be heard, speech discrimination was difficult or even impossible.

Dosage

Starting dosage of prednisone was usually 30 mg. daily for one week, then 20 mg., and thereafter it was reduced 2.5 mg. each month if progress was satisfactory. The dose was raised again if there was any marked deterioration. In general the dosage was titrated according to the results of audiometry done at each visit.

Results

Table 3 compares the last pre-treatment discrimination scores for the ears separately and together with the latest test available at the time of analysis. The duration of follow-up from the beginning of treatment is given in the right hand column of the table.

Discrimination testing was not done in case 2 before treatment. In case 6, discrimination was sufficiently good before treatment to preclude assessment of improvement. Of the 17 patients in which comparison can be made, definite improvement in discrimination score is shown in 1 or both ears by 8 (cases 1, 7, 8, 9, 12, 13, 14 and 16).

In general, as shown in Table 4, improvement in the speech-hearing threshold paralleled that in discrimination score. As shown in Table 5, for most of the successful cases the average mid-tone loss decreased, but improvement was absent in 2, slight in 1, and in case 8 there seemed to be marked worsening.

Table 6 attempts assessment of overall results of treatment. This is difficult, as discrimination score, speech-hearing threshold, and pure tone audiogram must all be considered. From a pragmatic point of view, discrimination score is the most important because it is the best measure of ability to understand speech, given sufficient amplification. Definite improvement in hearing is assessed as having occurred for the 8 patients with significant improvement in discrimination score and for 2 additional patients, one with good discrimination before treatment and one in whom pre-treatment discrimination scores were not measured, and in both of whom speech-hearing threshold and pure tone audio-

Table 3. Neural deafness of congenital syphilis: comparison of last pre-treatment and most recent post-treatment discrimination score (percent)

Case No.	Pre-treatment			Post-treatment			Post-treatment follow-up
	Right	Left	Both	Right	Left	Both	
1	0	0	0	0	92	92	49 months.
2	----------	----------	----------	92	----------	92	9 days.
3	0	74	76	0	78	80	24 months.
4	100	0	100	100	0	100	9 days.
5	0	0	0	0	0	0	3 weeks.
6	----------	----------	88	96	96	100	23 months.
7	0	60	68	48	92	96	8 months.
8	0	0	0	80	0	88	18 months.
9	0	0	0	0	36	----------	14 months.
10	0	0	0	0	0	0	8 months.
11	100	78	96	92	80	100	13 months.
12	0	0	0	76	0	76	11 months.
13	0	28	----------	0	52	----------	5 months.
14	0	60	60	64	68	88	8 months.
15	0	0	0	0	0	0	7 months.
16	0	60	76	40	92	84	2 months.
17	76	72	80	80	74	84	5 months.
18	0	0	0	0	0	0	6 weeks.
19	0	80	80	20	72	72	11 days.

Table 4. Neural deafness of congenital syphilis: comparison of last pre-treatment and most recent post-treatment speech hearing threshold (db above normal)

Case No.	Pre-treatment			Post-treatment		
	Right	Left	Both	Right	Left	Both
1	No	No	No	No	56	56
2	64	----	40	12	----	16
3	64	46	46	70	54	60
4	12	No	12	12	No	12
5	No	No	No	No	No	No
6	----	----	36	----	----	14
7	No	44	46	54	16	22
8	----	----	#60	68	No	68
9	No	82	82	No	74	74
10	No	No	No	No	No	No
11	36	42	42	36	46	40
12	No	No	No	66	No	66
13	No	72	76	No	68	68
14	No	30	30	60	30	34
15	No	No	No	No	No	No
16	56	46	46	56	24	36
17	48	38	40	52	50	44
18	No	No	No	No	No	No
19	No	48	46	76	40	40

Thresholds=for spondaic words.
Prefix #=for numbers.
No=not obtainable at any amplification.
Follow-up as for discrimination score.

Table 5. Neural deafness of congenital syphilis: comparison of last pre-treatment and most recent post-treatment average mid-tone loss (db)

Case No.	Pre-treatment		Post-treatment	
	Right	Left	Right	Left
1	77	80	93	55
2	70	30	20	18
3	63	47	67	55
4	15	90	12	Out
5	73	77	78	77
6	38	38	15	10
7	70	42	47	18
8	37	47	67	68
9	67	70	Out	73
10	68	97	Out	Out
11	33	40	47	48
12	78	Out	68	Out
13	Out	67	Out	68
14	72	38	58	33
15	88	Out	88	Out
16	68	55	58	30
17	47	35	42	43
18	53	53	Out	Out
19	67	45	62	48

Average mid-tone loss=average of pure-tone thresholds obtained for 512, 1,024 and 2,048 c/s.
out=no response to one or more mid-tones.
Follow-up as for discrimination score.

grams improved greatly with therapy. Only one of these 10 patients received penicillin with the prednisone. Two other patients received prednisone for only 9 and 11 days respectively, 1 without and 1 with slight improvement.

While improvement usually occurred within one or two weeks, occasionally it took longer, so that prednisone should be continued for one month before it is regarded as of no benefit. Cases 1, 6, and 8 have been followed for 40, 1 and 2 months respectively after treatment was stopped, without retrogression.

Two case histories are described. Case 1 (P.D.): This case history was reported in detail by Murphy, Hahn and Haskins (*3*). In brief, in 1956 when age 18, this young woman developed an acute, extremely severe exacerbation of a pre-existing neural deafness due to congenital syphilis. Commencing 36 hours after the exacerbation, prednisone in doses of 30 mg. daily for two days, then 20 mg. daily, resulted in a return within 2 weeks to the hear-

Table 6. Neural deafness of congenital syphilis: overall results of treatment of 19 cases

Definite improvement	10
Possible improvement	1
No improvement	8

ing status prior to the deterioration. Prednisone was gradually reduced in dosage and stopped altogether after 9 months. She has now been followed for 40 months after termination of treatment and the hearing has shown no retrogression in that time.

Case 8 (Thomas) : A 45-year-old man had interstitial keratitis and choroiditis, negative Eagle and VDRL test, but a positive TPI test. He had been deaf for 33 years. He had received adequate penicillin. Speech audiometry in 1953, 1957 and two weeks before prednisone was started in June 1959, showed no discrimination whatsoever and a hearing threshold which could be obtained only with numbers. He followed speech solely by lip reading. In spite of this, the pure tone audiogram (as shown in Figure 1), two weeks before treatment showed only a moderate impairment in both ears. One month after starting treatment the binaural discrimination score (as shown in Figure 2) was 56%. After 3 months the discrimination scores were 80%, right ear; 32%, left ear; and 78%, binaural. As the dose of prednisone was gradually reduced discrimination by the right ear was maintained, but that by the left ear lost. The prednisone was stopped altogether after 16 months, and the audiogram two months later showed no significant change. Although this patient requires considerable amplification of speech to hear, he is now able to do so with the help of a hearing aid, whereas previously no increase of intensity could enable him to discriminate. As shown in Figure 3, the pure tone audiogram has shown wide fluctuation throughout and by itself would appear to indicate deterioration rather than improvement, thus illustrating the complexity of the deafness in some patients.

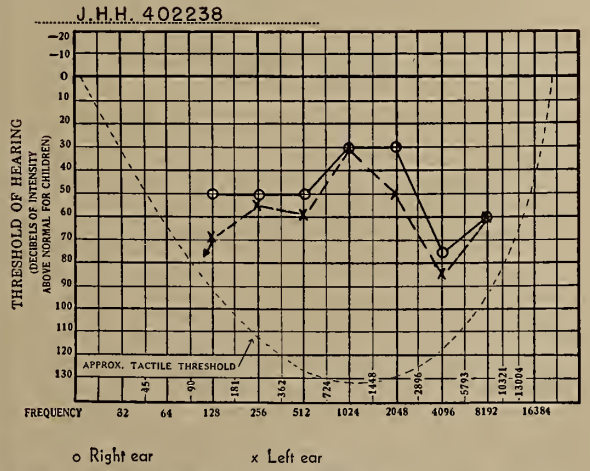

Figure 1. Case 8: Pure tone audiogram two weeks before treatment

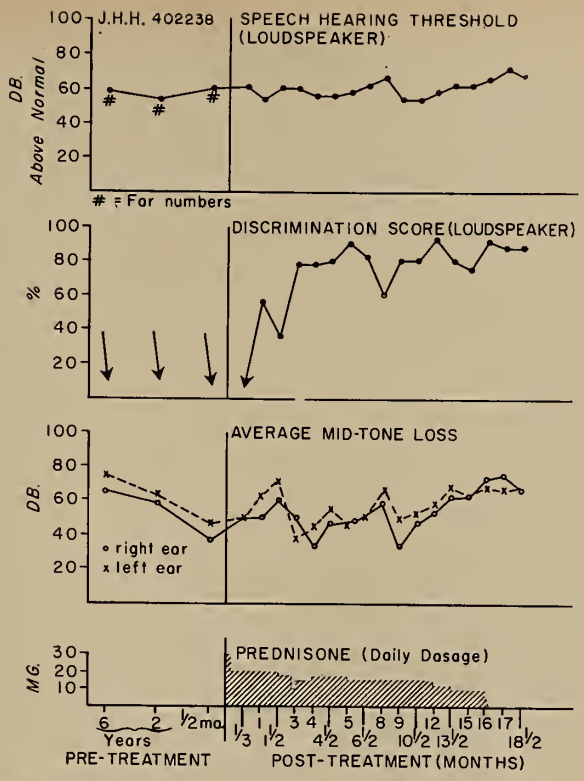

Figure 2. Case 8: Graph of speech hearing threshold, discrimination score and average mid-tone loss before and after treatment

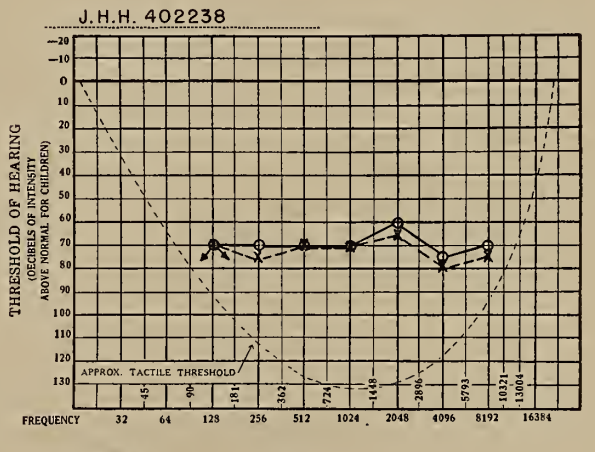

Figure 3. Case 8: Pure tone audiogram two months after treatment stopped

Comments

Since the postganglionic fibers of sensory nerves do not regenerate, the classical teaching that neural deafness of congenital syphilis is a purely degenerative phenomenon involving a sensory nerve has led to therapeutic nihilism. The restoration of useful hearing in a number of such cases points up the axiom that theory

may at times delay progress. The complexity of the neural auditory mechanism is perhaps not generally realized. Hearing is, in actuality, a complex psychosensory perceptual phenomenon, dependent not only upon the integrity of the end-organ and the auditory nerve, but also upon the central connecting and cortical auditory centers. In the present state of knowledge, as a rule, neither neurological nor the most elaborate audiometric examinations permit actual identification of the site of the lesion.

Certain aspects of syphilitic infection in general, and of congenital syphilis in particular, are almost equally obscure. In early syphilis treponemes are present in myriads, and tissue damage is minimal, while in late syphilis treponemes are few, and tissue damage is extensive. An element of hypersensitivity seems a reasonable inference, and this is supported by the results of re-inoculation experiments in which lesions resembling gummata appear at the re-inoculation site in some patients with late syphilis (*7*).

Tissue hypersensitivity seems to play an even larger role in three manifestations which are peculiar to late congenital syphilis: interstitial keratitis, intermittent hydrarthrosis of the knees, and neural deafness. All three may appear during or after maximal treponemicidal therapy with penicillin, none respond to such therapy, and in none have *T. pallida* been demonstrated by most workers. All three respond to a greater or lesser degree to therapy with the adrenal steroids in somewhat the same manner as rheumatoid arthritis, rheumatic fever, and systemic lupus erythematosus.

It is at least now clear that the neural deafness of congenital syphilis is not usually a purely degenerative process, and it is furthermore strongly suggested that for variable but often great lengths of time sometimes measured in years, the process is at least in part inflammatory and susceptible to modification. One may suppose that the steroids suppress the florid inflammation while the reaction subsides.

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Influence of Penicillin Allergic Reactions on Venereal Disease Control Programmes

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ABSTRACT

Allergic reactions to penicillin which is the drug of choice for the treatment of both gonorrhea and syphilis are reviewed. Penicillin is the commonest cause of drug allergy and cases of anaphylaxis, potentially fatal, are of serious concern.

The prevention of penicillin reactions is considered and the practice of taking a careful history of previous upset to penicillin, and giving an alternative when obtained, is endorsed. Skin, serum and other tests to detect allergy have not so far been generally regarded as of mass value in a venereal disease control program.

The incidence of penicillin reactions in venereal disease patients has generally been low. Collected data of over 74,000 cases has shown a reported incidence of less than 1%.

Fatalities (from anaphylaxis and other causes) are very rare in relation to the vast amounts of penicillin used. An average of one death or less in the professional lifetime of most venereologists is noted.

The problem of allergic reactions in venereal disease patients is not one that continues to increase in magnitude.

Penicillin is not used in the treatment of non-gonococcal urethritis or of trichomoniasis.

The author found that the antibiotic could be used in 96.4–98.2% of cases of venereal syphilis in and around London. It is concluded that the present utilization of penicillin is not one which at present offers a serious threat to a treponematoses-control program although continued vigilance is required.

SOMMAIRE

Les réactions allergiques à la pénicilline, médicament de choix pour le traitement de la blennoragie et de la syphilis, sont ici passées en revue. La pénicilline est la cause la plus commune d'allergie médicamenteuse et les cas d'anaphylaxie, qui peuvent être mortels, sont un sujet d'inquiétude grave.

On étudie la possibilité de prévenir les réactions à la pénicilline et on recommande de toujours s'enquérir soigneusement d'un historique de troubles dûs à la pénicilline, et de prescrire en de tels cas un autre médicament. Jusqu'à présent, les tests cutanés, sérologiques et autres destinés à révéler une allergie ne sont généralement pas considérés comme ayant une valeur universelle dans un programme de lutte antivénérienne.

L'incidence des réactions à la pénicilline chez les malades vénériens a généralement été peu élevée. Les données rassemblées sur 74.000 cas ont montré une fréquence déclarée de moins d'1%.

Les cas mortels (dus à l'anaphylaxie et autres causes) sont très rares par rapport aux énormes quantités de pénicilline employée. On note une moyenne d'une mort au plus dans la carrière de la plupart des vénéréologues.

Le problème des réactions allergiques chez les malades vénériens n'est pas de ceux qui continuent à augmenter d'envergure.

La pénicilline n'est employée ni dans le traitement de l'urétrite non-gonococcique, ni dans celui de la trichomoniase.

L'auteur a constaté que cet antibiotique pouvait être employé dans 96,4 à 98,2% des cas de syphilis vénérienne à Londres et dans les environs. Il en conclut que l'utilisation actuelle de la pénicilline ne présente pas de menace sérieuse à un programme de lutte contre les tréponématoses, bien qu'elle exige une attention toujours en éveil.

RESUMEN

Se estudian las reacciones alérgicas a la penicilina que es el medicamento seleccionado para el tratamiento tanto de la sífilis como de la gonorréa. La penicilina es el medicamento que con mayor frecuencia produce reacciones alérgicas y los casos de anafilaxia, que son potencialmente fatales, son motivo de seria preocupación.

Se ha considerado la prevención de las posibles reacciones a la penicilina y se recomienda la obtención de información relativa a casos previos de reacción desfavorable a la misma y, de darse ésta, el empleo de algún substituto. Hasta la fecha no se ha dado gran importancia a los análisis dermatológicos, serológicos y de otro tipo en los programas de control de las enfermedades venéreas.

La incidencia de las reacciones desfavorables a la penicilina en los pacientes de enfermedades venéreas ha sido, por lo regular, baja. La información recogida en relación a más de 74,000 casos registra una incidencia de menos del 1% en los casos reportados.

Los casos fatales (consecuencia de anafilaxia y otras causas) son muy escasos en comparación con las grandes cantidades de penicilina empleadas. Se sucle registrar un promedio de una muerte, oemenos, en el curso de la vida profesional de la mayoría de los venéreólogos.

La magnitud del problema de las reacciones alérgicas en pacientes de enfermedades venéreas no continúa aumentando en intensidad.

La penicilina no se emplea en el tratamiento de uretritis no gonococal o de triconomiasis.

El autor descubrió que el antibiótico se pudo utilizar

entre un 96.4 y un 98.2% de los casos de sífilis venérea en Londres y sus alrededores. Se ha llegado a la conclusión de que el actual empleo de la penicilina no representa una grave amenaza para un programa de control de la treponemiasis, aunque se requiere una supervisión constante del mismo.

FOR BOTH SYPHILIS and gonorrhoea penicillin, in spite of other would-be contenders, is still the drug of choice for the treatment of these diseases. And yet of all drug reactions encountered penicillin is responsible for from 70–90% (Welch *et al.*, 1957; Casgrain, 1961; Tirlea and Anghelescu, 1961). Indeed it is by far the commonest cause of drug allergy (Lowance, 1960; Maha, 1961). Penicillin produces the most anaphylaxis (9% fatal), the most exfoliative dermatitis (10% fatal) and the most angio-oedema with respiratory involvement (13% fatal)—see Welch *et al.*, 1958.

The reactions to penicillin are many. They include (a) toxic effects; (b) microbiogenic effects; and (c) allergic reactions (Idsøe *et al.*, 1957; Guthe *et al.*, 1958). Apart from local toxicity—especially with benzathine penicillin with which with some preparations nearly one-half of patients treated have experienced some local pain (Krugman and Ebin, 1958)—penicillin is a remarkably non-toxic drug and a lethal dose is almost impossible to administer by a single injection.

The possibility that some of the newer penicillins may affect the bone marrow has, however, been queried (McElfresh and Huang, 1962) and some workers (e.g., Boyd *et al.*, 1960) have postulated that some reactions, including anaphylaxis and others generally attributed to allergy, are in fact toxic in nature in hypersusceptible subjects.

The microbiogenic effects of Herxheimer reaction (therapeutic shock) and therapeutic paradox during the treatment of syphilis are really a testimony to the efficacy of the antibiotic. Bacterial resistance to penicillin has not so far occurred in respect of *T. pallidum* (Turner and Hollander, 1957) but is a potential problem in gonorrhoea. This is regarded, however, as beyond the scope of this paper. Superinfection with other penicillin insensitive organisms (e.g., staphylococci, monilia, etc.) is a side-effect common to all antibiotics and will not be considered further.

The most important reactions to penicillin are the immediate and late allergic reactions which include anaphylaxis, urticaria, angio-oedema and dermatitis (see amongst many others Dobson *et al.*, 1957; Zimmerman, 1958; Willcox, 1959). Other rarer reactions include fixed drug eruptions (Verma, 1959); pachymeningitis (Farmer *et al.*, 1960); purpura (Warwick, 1960); gangrene (Yeh Fang, 1958); and massive intestinal haemorrhage (Maha, 1961; Subhijah, 1961). Not all the so-called allergic reactions are to penicillin; in some they may be due to the combined procaine (see Fernstrom, 1959 and 1960), particularly immediate reactions with tinnitus, dizziness, metallic taste, parasthesiae and acute mental disturbance (Hoigne and Schoch, 1959; Bjornberg, 1959; Grounds, 1960) although, unlike anaphylaxis which such reactions may resemble, there is no circulatory collapse (Bjornberg and Selstam, 1960).

It is anaphylaxis from which fatalities may result which commands the greatest attention: of all allergic reactions it is the greatest potential inhibiting factor on a venereal disease programme. It has been stated that only two deaths from penicillin sensitivity were recorded during the first nine years of penicillin usage but in the period 1953–1954 onwards increasing numbers came to be reported from countries in which penicillin had been most widely used (Kern and Wimberley, 1953; Babione, 1956; Rajam and Rangiah, 1956; Guthe *et al.*, 1958; Idsøe and Wang, 1958) although other cases may have occurred elsewhere at an earlier date (Chiang Shih-Yu, 1957). By 1957 it was estimated that over 1,000 deaths from anaphylaxis to penicillin had occurred in the U.S.A. (Peters *et al.*, 1957).

At first serious anaphylaxis was rare following penicillin given orally but in recent years an increasing number of cases have been recorded (Fraser, 1958; Balson, 1960; Miller, 1960; Todd, 1960) including a few fatalities (Levine *et al.*, 1960) even in children (Mason, 1957). Anaphylaxis has even occurred from the use of penicillin-containing lozenges (Gullatt, 1957) and from rectal suppositories (Halpern, 1960).

Today fatalities are still occurring (*Schweiz med. Woch*, 1958; Schiff and Davis, 1961) and are being experienced in countries not previously troubled by them (Subhijah, 1961). It has been estimated by the Mexican Society of Allergists that in Mexico there was one death

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daily from penicillin allergy (Mallen, 1960), although this would seem to be an extravagant estimate. The publicity they have engendered has interfered with the development of programmes aimed at venereal syphilis (WHO, 1958; Idsøe and Wang, 1958). Opposition has been offered to the routine administration of penicillin to adult populations for the eradication of non-venereal treponematoses, e.g., pinta (Mallen, 1960). They certainly represent a legal hazard to the practitioner and a number of fatal cases of anaphylaxis have been the subject of law suits (Rosenthal, 1958).

Prevention of Allergic Reactions

In the prevention of allergic reactions to penicillin it has been repeatedly emphasized that penicillin should not be given except on sound therapeutic or prophylactic indications and particularly that the local use of penicillin should be discouraged as its use in local ointments, compresses, instillations and aerosols, etc., has in many cases led to sensitization when penicillin was used for fresh conditions at a later date (Tirlea and Anghelescu, 1961).

The taking of a careful history before administering the antibiotic of previous upset to it, or of other allergy—particularly of asthma, and using an alternative when such a history has been obtained, does much to prevent serious reactions although anaphylaxis can occur even in persons who apparently have not had penicillin before, possibly from hidden contacts with penicillin, e.g., in milk, syringes, in virus vaccines, and from cross sensitization with other fungi (Rosenthal, 1958; Siegel, 1959). It is also very important to have readily at hand the adrenalin and other drugs and the means of their administration for the prompt treatment of anaphylaxis should it occur (Taggart and Greaves, 1960).

The above measures have been fairly widely adopted in recent years and appear to have reduced substantially the fatality rates from anaphylaxis from around 28% (Welch *et al.*, 1953) to approximately 9% (Welch *et al.*, 1958).

Other measures, less widely adopted, include the keeping of patients in the clinic for 30 minutes following injection (Brown, 1960; Brown *et al.*, 1960), the use of test doses of oral penicillin (Brown, 1956), of other drugs in combination with penicillin, and of skin and serum tests in an attempt to detect penicillin sensitivity in advance.

As has been indicated even fatal cases of anaphylaxis can occur following oral administration. Although some authors (e.g., de Graciansky and Grupper, 1961) have claimed that the simultaneous use of steroids will reduce the incidence of Herxheimer reactions cases of anaphylaxis to penicillin have occurred in patients on steroid therapy (Bernstein and Lustberg, 1957). The simultaneous use of antihistamines has been stated not to reduce the incidence of reactions (Sciple *et al.*, 1959; 1960) although others (e.g., Brown *et al.*, 1961) consider the risk is reduced with their use.

A number of authors (e.g., Brown, 1956; Cazort and Johnston, 1957) urge the use of skin tests which although not of great help in detecting delayed reactions have been considered by some authors as serviceable in indicating potential anaphylaxis (Steele and Hijazi, 1959; Fernstrom, 1960a—see also *Lancet*, 1957; Gerber and Colle, 1961). However negative skin tests still offer no complete assurance that anaphylaxis may not occur (Teigland, 1957; Fernstrom, 1960a) and a positive skin reaction, likewise, does not indicate that anaphylaxis is inevitable.

If skin tests are made, scratch and conjunctival tests are recommended rather than intradermal tests (Schiff and Davis, 1959; Steele and Hijazi, 1959) for fatal or severe cases of anaphylaxis have followed the giving of minute quantities of penicillin by intradermal testing (Wang, 1957) as have cases of precipitate labour and stillbirth (T'ao Jen and Sung Chieh, 1958).

Although the scratch and conjunctival tests can produce a result in 15–20 minutes (Steele and Hijazi, 1959), and it has been stated that approximately only 1% of patients will be denied therapy by this means (Smith, 1957), their mass use in a syphilis control programme at once poses the difficult problem as to what is to be done with the accumulating numbers of positive reactors, e.g., in Taiwan where 0.5–2.0% of positive reactors were obtained (WHO, 1958).

In more recent years studies have been made of anti-penicillin antibodies by haemagglutination techniques (Epp, 1959; Bird, 1960; Harris and Vaughan, 1961) and specific anti-penicillin antibodies have been found. The thrombocytopenic index and other tests have also been studied (Heijer *et al.*, 1960). The findings with such tests to date have not proved sufficient in the detection of potentially anaphylactic persons. Newer tests, e.g., the Basophil reaction, are under investigation and are said to be more hopeful (Shelley and Juhlin, 1961).

Sensitivity tests have, therefore, so far had

no wide application to venereal disease clinics. As in dealing with communicable diseases like syphilis and gonorrhoea speed is essential, and any test which is developed in the future will have to be swift and easy of performance on a "while-you-wait" basis to be of maximum service to the venereologist.

Implications of Penicillin Allergic Reactions in the Control of Syphilis and Gonorrhoea

Important questions from the standpoint of venereal disease control are: (1) How frequent are penicillin reactions in patients with venereal disease; (2) how often are they serious or fatal; (3) to what extent do they interfere with the treatment of the patient or with venereal disease control as a whole; and (4) is the problem one which is increasing?

These questions are considered from recorded reports in the literature and from the experience of two venereal diseases clinics, one a large clinic in London (St. Mary's) and the second, a smaller one, situated at Windsor about 25 miles from the city. In the former no less than 108,311 new patients have been seen during the period 1945–61 of which it is estimated that some 35,000 have been treated with penicillin (32.4%). Sample series of 226 cases of syphilis and 200 cases of gonorrhoea in which penicillin was used during 1960–61 are also reviewed. At the smaller clinic the reactions to penicillin of 895 patients given 7,300 injections of the antibiotic during the years 1946–56 (Willcox and Fryers, 1957) are compared with those of a further 314 patients given 877 injections in 1959–61, making an overall total of 1,635 penicillin-treated patients receiving detailed study.

Incidence of Penicillin Reactions

Rates of allergic reactions to penicillin quoted in the literature vary between 1–53%, depending particularly on methods of observation and recording, criteria of definition and of the nature of the treated group. From 1–10% is common (Cortes, 1960; Arif, 1961; Moore and Woody, 1960) although figures of only 1–2% are recorded in large series of patients (Babione, 1956; Bernstein and Houser, 1959; McFarland, 1958; *Med. J. Austral.*, 1959; Willcox, 1958). In some series minor reactions not volunteered by the patient are likely to have been ignored. A frequently quoted figure is 2% of children, 5% of non-allergic adults, and 15% of allergic patients (Brown, 1956; Kamdar, 1959).

Reaction rates in over 74,000 patients with venereal disease quoted in the literature have generally been low (Table 1).

Table 1. Penicillin allergic reactions in over 74,000 patients with venereal disease

Author	Cases	Reactions	Percent with reactions
India 1953–56 (see Willcox 1958)	21, 747	83	0.38
United States (Smith *et al.*, 1955)	16, 345	109	0.67
United Kingdom (Morton 1957)	403	30	7.4
China (Tung *et al.*, 1957)	1, 244	127	10.2
United States (Sciple *et al.*, 1959)	4, 537	22	0.48
Norway (Gjessing 1960)	5, 231		Less than 1 percent
United States (Brown *et al.*, 1961)	25, 250	248	0.97

The relationship between the incidence of reactions and the number of injections has been noted by many authors (see Willcox and Fryers, 1957; Brown *et al.*, 1961 and Table 4). This is reflected also in a direct relationship with dosage, duration of therapy, age of the patient and also of diagnosis (Table 2).

Table 2. Relationship of incidence of reactions in V.D. patients to diagnosis

Diagnosis	Patients	Reactions	Percent
Gonorrhoea	607	5	0. 82
Other conditions	372	10	2. 69
Syphilis	656	54	8. 23
Total	1, 635	69	4. 22

Thus, in the author's data, the incidence of allergic reactions in patients treated with multiple injections for syphilis was 10 times that observed in the treatment of gonorrhoea in which single injections were usually given. The close relationship of allergic reactions with the number of injections is shown in Table 3.

Thus of 1,635 venereal disease patients treated with penicillin there were 69 possible allergic reactions (4.22%). The incidence was lowest (0.73%) following the first or single injection and the cumulative percentage of reactions rose virtually in a straight line as the number of injections was increased.

Table 3. Incidence of reactions according to number of injections of penicillin

No injections	Totals	Reactions	Percent	Cumulative percent
1	1, 635	12	0. 73	0. 73
2–4	871	11	1. 27	2. 00
5–9	652	23	3. 53	5. 53
10–19	420	16	3. 81	9. 34
20 or plus	123	7	5. 69	15. 03
Total	1, 635	69	4. 22	15. 03

Reaction rates following single or multiple injections reported by other authors are shown in Table 4.

Table 4. Reaction rates in V.D. patients reported following single or multiple injections of penicillin

Author	Single injection rate (percent)	Multiple injection rate (percent)
Brown *et al.* (1961)	0. 53	6. 6
Smith *et al.* (1956)	. 19	7. 4
Willcox and Fryers (1957)	. 0	9. 0
Sciple *et al.* (1959)	. 48	----------
Tung *et al.* (1957)	----------	10. 2
Morton (1957)	----------	7. 4

Thus following single injections reaction rates of approximately 0.5% or less may be expected whereas with multiple injections rates of 6–10% may be encountered.

How Often Are Penicillin Reactions Serious or Fatal?

Reported fatalities from penicillin in venereal disease patients are low indeed (Table 5), i.e., 1 death per 78,002 patients treated.

Included in the table is the author's own experience. At St. Mary's of a total number of 108,311 new patients seen between 1945 and 1961 (76,919 male) 37,124 (34.3%) had syphilis or gonorrhoea. Excluding those treated with other drugs, largely on research schedules, an estimated total of 35,000 patients were treated with penicillin with no fatalities. At Windsor of 895 patients treated between 1946 and 1956 there was delayed fatality from dermatitis (Willcox and Fryers, 1957). None occurred in the 314 patients treated in this clinic between 1959–1961 or in the intervening period. In total this implies 1 death per 78,000 cases treated which is literally one or less deaths in a professional lifetime of experience for most venereologists.

If the incidence of total reactions were between 1 and 10% for the 11 fatalities there would have been between 8,580–85,800 milder reactions. Large-scale data (Brown *et al.*, 1961) have shown that in non-fatal reactions only about one-sixth or less are anaphylactic in nature, the majority of the remainder being of urticaria and angio-oedema. Only about one-third of the anaphylactic cases are moderate or severe.

Fatalities are very few in relation to the vast amount of penicillin used. Gjessing (1960) reported no fatalities following the use of 4.6 billion units of penicillin for venereal disease patients in Norway, and Babione (1956) none in an issue of 3,453 billion units over a 3-year period to the U.S. Navy.

Is the Problem of Penicillin Sensitivity Reactions Increasing?

The dramatic impact of the spate of cases of fatal anaphylaxis reported in the early fifties led clinicians to suppose that the problem of penicillin reactions was an increasing one. A number of authors (e.g., Brown, 1956; Peters

Table 5. Fatalities in over 858,000 V.D. patients treated with penicillin

Source	Author	Cases	Fatalities
United States, 1960	Brown *et al.* (1961)	100, 000	1
United States, 1959	Brown *et al.* (1961)	35, 496	0
United States, 1959	Sciple *et al.* (1959)	4, 537	0
Norway, 1946–59	Gjessing (1960)	55, 231	0
United Kingdom, 1946–56	Willcox and Fryers (1957)	895	1
United Kingdom, 1945–61	Present paper	35, 314	0
WHO (17 countries), 1952–56	Willcox (1958)	626, 551	9
Totals		858, 024	11

et al., 1955) have suggested that their incidence is increasing even in children (Maha, 1961). An annual increment of 1% per year has been suggested (Brown, 1956).

As it has been stated, immediate reactions are more likely in those who have received penicillin at an earlier occasion (*Med. J. Austral.*, 1959). The immediate reaction rate thus should be related to the proportion in the treated population of persons who have previously had penicillin.

However although it has been shown (Willcox and Fryers, 1961; Brown *et al.*, 1961) that there is an increased incidence of reactions in patients who have had penicillin before compared with those who have not, the apparent increase (from 5.95 per 1,000 in 1954 to 9.71 per 1,000 in 1959 in the data of Brown *et al.*, 1961) was considered likely to have been due largely to an increasing awareness of reactions and the practice of retaining treated patients in the clinics for 30 minutes during the latter year. However it must be remembered that under current practice those who are most likely to get a reaction, i.e., those who had a reaction on a previous occasion, are usually not now given an opportunity to contribute and the difference between "penicillinized" and "non-penicillinized" persons is less striking than otherwise might be the case.

Certainly in the author's personal data there is no evidence of an increase in the incidence of reactions—indeed if anything the opposite (Table 6).

If reactions are related to previous penicillin administration it would be expected that there would be no further increase in incidence once that the saturation point of "penicillinization" has been reached; or once that the proportion of "penicillinized" persons had become stabilized.

Indeed in some areas, e.g., Igloo, North Dakota where over 99% of a small community have been shown to have received antibiotics, almost complete saturation appears to have been achieved (Nolen and Dille, 1957). Currently in London approximately 71% of male venereal disease patients have had penicillin previously with a somewhat lower figure for females (47.8%) who tend generally to fall in a lower age group (Table 7).

Table 6. Penicillin reactions in a small clinic

Diagnosis	1946–56			1959–61		
	Patients treated	Reactions	Percent	Patients treated	Reactions	Percent
Syphilis	366	33	9. 1	64	4	6. 3
Gonorrhoea and other conditions	529	10	1. 9	250	4	1. 6
Total	895	43	4. 8	314	8	2. 5

These figures compare with 76.5% for males and 57.1% for females in a study of 275 venereal disease patients in London undertaken in 1958 (Willcox, 1959). The average age for female patients attending venereal disease clinics (24.3 years in the latter study) tends to be lower than that of males (29.5 years).

How Far do Penicillin Reactions Interfere With a Venereal Disease Control Programme?

While it cannot be denied that the publicity engendered by fatalities from penicillin may in-

Table 7. Previous penicillin administration in V.D. patients

Source	Diagnosis	Sex	Total cases	Information known	Previous penicillin	Percent
London, 1960–61	Syphilis and gonorrhoea	M	[1] 429	364	258	70. 9
Windsor, 1959–61	V.D. patients	M	863	579	411	71. 0
Windsor, 1959–61	V.D. patients	F	454	343	164	47. 8

[1] Average age 29.3 years.

terfere with the development of a mass venereal disease programme (WHO, 1958) it is not usually fatalities amongst venereal disease patients which bring this about but rather those occurring in the population at large, especially when the antibiotic is being indiscriminately used. Amongst venereal disease patients fatalities have been shown to be excessively rare. They are so particularly if a history is taken of previous upset to penicillin administration or of other allergy, and if alternative drugs (e.g., the tetracyclines) are used when a positive history has been obtained.

Table 8. Contra-indications to penicillin therapy in venereal disease patients (1959–61)

	No.	Percent
Total patients	1, 317	
Previous status known	922	100
Previous history of allergy to penicillin	28	3. 04
History of allergy other than to penicillin	5	. 54
Total known allergic subjects	33	3. 58

The frequency that such a history is obtained and alternative drugs may be necessary is shown in Table 8.

Of the 922 of 1,317 patients (Windsor) concerning whom information was available previous allergy to penicillin had been noted in 28 (3.04%). As the number known to have had penicillin was 575 the rate in those known to have had the antibiotic was 4.87%. The reactions included 1 of vomiting, 1 of nausea, 1 of faintness and 1 of dizziness, 11 of urticaria (restricted to the injection site in 1 case), 4 of angio-oedema, 1 of fever, 3 of dermatitis or eczema, and 3 of local sensitivity from ointment or eye drops. In two cases the reported reactions were not classifiable. In one of these cases the patient stated that the leg swelled afterwards and he could not walk properly for 6 months, and in the other that the leg went blue and he was told not to have penicillin again.

Five patients gave a history of allergy other than to penicillin (0.54%). One was an asthmatic, three suffered from flexural eczema or dermatitis—in one patient with aortic syphilis this was generalized from chlorothiazide—and one had had a rash from streptomycin. Penicillin had previously been given in only one of these five cases. Thus in the total group of venereal disease patients a decision to withhold penicillin was considered in 3.58%.

Possible sensitivity to penicillin offers little problem in venereal diseases other than syphilis. In non-gonococcal urethritis and trichomoniasis penicillin is not used as it is ineffective. In gonorrhoea there are many other effective antibiotics (streptomycin, the tetracyclines, spiramycin, erythromycin, actinospectacin, chloramphenicol, etc.) which can easily be given instead whenever an allergic history is obtained. With single injections of penicillin reactions are few. Indeed of a sample 200 male patients with gonorrhoea treated in 1960 (68.5% of whom had had penicillin before) there was only one case of reaction (of urticaria at 3 days), or 1.5% of those treated.

It is in syphilis and the other treponematoses therefore that the biggest problems arise. Reactions to penicillin have been of little concern in the vast programmes organized against the endemic treponematoses by the World Health Organization, particularly those against yaws and the endemic treponematoses in which over 36 million persons have now been treated with penicillin (WHO, 1962). The populations concerned are predominantly children in whom the incidence of reactions is lower than in adults and are usually persons from backward areas whose previous opportunities of exposure to penicillin have been slight (Idsøe *et al.*, 1957). The patients too are often Negroes in whom reaction rates are lower than in other races (Brown *et al.*, 1961). The problem is therefore virtually confined to programmes against venereal syphilis or in the treatment of all treponematoses when adult populations of towns are involved.

Influence of Penicillin Reactions Upon the Treatment of Patients with Venereal Syphilis

Of 229 male syphilis patients seen in London in 1960–61, the average age of whom was 30.1 years and 57 of whom were Negroes, 121 (52.8%) were known previously to have had penicillin and 4 were believed to have been allergic to it (urticaria in 2, type unstated in 2). This represented 3.3% of those who had had penicillin but only 1.75% of the entire group. One of these patients was a treated case and no more treatment was given, one was given a 10-day course of penicillin without trouble and 2 were treated with tetracyclines instead. Thus in only 2 (0.87% of the entire group) was alternative treatment required. There were no cases of previous allergy from other reasons but one patient was known later to develop a dermatitis from sulphonamides.

Penicillin was in fact given to 226 of these patients by multiple injections either of procaine penicillin or procaine penicillin with aluminium monostearate daily, or of the latter preparation given twice weekly. Excluding Herxheimer reactions, suspected allergic reactions to penicillin were noted in 17 cases (7.52%). Only 1 reaction was in the group of 57 Negroes the reaction rate being only 1.77% in the Negro group compared with 9.57% for the remainder. This finding is in accord with those of other authors (e.g. Brown *et al.*, 1961).

Of the 17 reactions noted 1 patient had an immediate faint following injection, 1 developed a profuse petechial rash at 3 days, 10 had urticaria alone (2 at 6–7 days, 6 at 8–14 days, 1 at 25 days and 1 at 56 days), 1 had urticaria and angio-oedema at 14 days, 2 had angio-oedema at 9 and 12 days respectively, 1 had dermatitis at 10–18 days (although this did also follow local treatment for scabies), and in 1 the reaction was unspecified although this patient had already received 7.2 mega units of penicillin. In no case was the reaction life-threatening.

Thus in all but 4 patients (1.77% of those receiving penicillin) the reaction took more than a week to appear. Thus, even in cases likely to have reactions, the majority can have been given a minimal curative dose of a repository penicillin before the reaction is evident.

In the current series, of 226 receiving penicillin, 209 received 6.0 mega units or more and 18 less than this amount (7.96%). However in the majority of these 18 cases the amount of penicillin given was small on account of default of the patient rather than because of reaction. Of the 17 patients showing reaction only in 5 was the amount received less than 6.0 mega units (2.2% of the entire treated group) and 4 of these patients received 3.0, 3.6, 4.4 and 4.8 mega units respectively. Only one patient (the one who fainted after the first injection of 0.9 mega unit) received an amount of penicillin unlikely to have been beneficial to the syphilitic condition.

Thus, even in this series of patients with venereal syphilis treated with multiple injections, 97.8% received a curative dose of penicillin.

The fact that many allergic reactions to penicillin take time to develop (see also Bjornberg and Selstam, 1957; Tung *et al.*, 1957; McFarland, 1958), and that the incidence of reactions increases with the number of injections, emphasizes the value of the use of single or double injection techniques using long-acting benzathine penicillin or procaine penicillin with aluminium monostearate so that if a reaction occurs a minimal curative dose will already have been given. This gives added force to the policy of the use of the so-called epidemiological dose of repository penicillin in the treatment of infectious syphilis as a protection to the patient and the community should she or he default after but one injection.

However it is felt that, because of the risk of serious reactions, penicillin should only be given to adults in developed urban areas under the responsibility of an attending physician who can ensure that the available methods of their prevention and alleviation can be effectively applied. As, even a mass campaign in an urban area is usually conducted from a fixed centre this affords no particular difficulty. It is fortunate that in mass campaigns against the treponematoses in the underdeveloped rural areas where medical men are at a premium that allergic reactions to penicillin have so far been of little concern although the situation is being closely watched.

By and large the author agrees with the views of others (e.g., McFarland, 1958) that allergic reactions offer no serious deterrent to the use of penicillin where indicated. The fatalities have been minute in relation to the vast amounts of penicillin used (see Gjessing, 1960). Reaction rates have been calculated as low as 1.8 reactions per billion units (Babione, 1956).

Applying the fatality rate of 1 in 78,000 cases to the 1,323,677 cases of syphilis and 2,388,638 cases of gonorrhoea reported by U.S. State Health Departments fiscal years 1952–1961 this would imply an anticipated total of 47 fatalities over this period. Whether this approaches reality the author does not know but no such numbers have apparently been recorded in the literature although doubtless a number of the cases of venereal disease are reported by general practitioners and such severe reactions treated by such persons might not be reported. It is interesting by comparison to observe that in 15 years 340 young Americans have been killed playing American football (Blonstein, 1962) which would average 226 deaths over a 10 year period and would appear to indicate that the problem of deaths from American football might be 4.8 times as great as the possible fatality problem from penicillin sensitivity reactions in venereal disease patients. Few of us would discourage our sons from playing football because of this risk. We should therefore have even less fear of them being treated by penicillin should they unfortunately contract venereal disease!

Or in England and Wales where 37,716 cases of syphilis and gonorrhoea were treated in venereal disease clinics in 1960: the estimated number of fatalities from penicillin would be approximately one-half a case. There were 527,532 deaths from all causes in 1960 and therefore less than one-millionth of all deaths would be due to penicillin given in venereal disease clinics.

Some comparisons with deaths from other causes are given in Table 9.

Table 9. Estimated deaths from penicillin reactions in V.D. clinics of England and Wales in 1960 compared with deaths from some other causes

Cause	Number of deaths	Multiple of deaths from penicillin in V.D. clinics
Penicillin in V.D. clinics	[1] 0.5	1
Gout	18	36
Aircraft accidents	48	96
Water-transport accidents	176	352
Homicide and injury inflicted by others	234	468
Railway accidents	254	508
Accidental poisoning	1,500	3,000
Suicide	5,118	10,236
Road vehicle accidents	6,740	13,480

[1] Estimated.

These figures show (for example, there were 3,000 times as many deaths from accidental poisoning in 1960 than estimated deaths from penicillin in V.D. clinics) that the problem is relatively insignificant and that there is a need for a sense of proportion.

Summary and Conclusions

1. Allergic reactions to penicillin which is the drug of choice for the treatment of both gonorrhoea and syphilis are reviewed. Penicillin is the commonest cause of drug allergy and cases of anaphylaxis, which may prove fatal, are naturally of serious concern.

2. The prevention of penicillin reactions is considered and the practice of taking a careful history of previous upset to penicillin, or of other allergy, and giving an alternative when obtained, is endorsed, as is the availability of the appropriate measures of resuscitation should anaphylaxis occur. The policy in some areas of keeping patients in the clinic for 30 minutes following an injection of penicillin is noted and other possible methods of prevention are reviewed. Skin, serum and other tests to detect allergy have not so far been generally regarded as of sufficient accuracy or simplicity of performance to be of mass value in a venereal disease control programme. Current developments in this field are receiving close interest.

3. The incidence of penicillin reactions in venereal disease patients has generally been low. Collected data of over 74,000 cases has shown a reported incidence of less than 1% but such rates are encountered with single injection techniques. When multiple injection techniques have been used in the treatment of syphilis reaction rates of 6.6–10.2% have been reported. Reaction rates are lower in Negroes than in other persons.

4. Fatalities (from anaphylaxis and other causes) are very rare in relation to the vast amounts of penicillin used. It is estimated from a collective survey of 858,024 venereal disease patients treated with penicillin that there was one death per 78,002 patients treated which implies an average of one death or less in the professional life time of most venereologists.

5. With increasing use of penicillin it might be expected that the incidence of penicillin reactions would increase. However once that the degree of penicillinization of the population has become stabilized and is no longer increasing, and provided the drug is withheld from suspected potentially allergic subjects, evidence is presented that would suggest that the problem of allergic reactions in venereal disease patients is not one that continues to increase in magnitude.

6. Penicillin is not used in the treatment of non-gonococcal urethritis or of trichomoniasis. In gonorrhoea there are a number of other effective antibiotics which can be used in potentially allergic subjects. Allergic reactions have proved so far of little concern in mass campaigns against the endemic treponematoses in which the treated groups are usually "unpenicillinized" children in underdeveloped rural areas who are given single injections. The greatest threat of allergic reactions to penicillin is in the treatment of venereal syphilis in adult urban populations.

7. In the author's data relating to venereal syphilis in and around London a previous history of allergy was an inhibiting factor in only 1.75–3.58% of cases and thus the antibiotic could be used in 96.4–98.2% of cases. If multiple injections are used some reactions will be observed (7.5% of cases in this series) but the late occurrence of many of them will ensure that all

but a few (2.2% in the series quoted) will have received a curative dose of the antibiotic. This figure can be even further reduced if more use can be made of the massive first injection, the so-called epidemiological dose.

8. It is therefore felt that a situation in which the use of the less satisfactory alternative orally-administered tetracyclines has to be considered in only 4–6% of cases, and in which the prescribed schedules can be followed in 94–96% of cases is not one which at present offers a serious threat to a treponematoses-control programme although, of course, continued vigilance is required.

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Hypersensitivity to Penicillenic Acid Derivatives in Humans With Penicillin Allergy

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ABSTRACT

A survey of 1,000 California physicians in 1954 revealed seven deaths attributed to penicillin. These figures were projected to include all physicians in the United States, and a figure of approximately 1,000 deaths attributable to penicillin was postulated up to that year. A U.S. Public Health Service Survey of 7.7% of hospital beds in 1953 revealed 19 additional fatalities. Projecting these figures to the whole country would put the number of hospital deaths secondary to penicillin at 247 up to 1953.

Most authorities predict the total incidence of non-life threatening allergic penicillin reactions to be approximately 3–10% of a random population. Assuming that 50 million persons receive penicillin yearly, the total number of such reactions is very high.

This paper reports on the results of skin tests using penicilloyl-polylysine on 3,667 patients in the Venereal Disease Clinic of the St. Louis Health Division. The minimum urticarial or erythema skin response considered positive was 12 mm. of urticaria or erythema, with the vast majority being over 15 mm. in diameter.

Skin tests were correlated with histories of previous penicillin reactions to subsequent therapy. The patients were divided into three groups according to previous history and skin test reaction. Over 50% of the patients with positive skin tests had no reaction to penicillin.

The results of these studies suggest that differences in immediate and delayed hypersensitive reactions to penicillin may be a function of the amount of penicillenic acid in the injection, the rate at which penicillin is hydrolyzed to penicillenic acid in the body, and the rate of coupling of penicillenic acid to protein.

SOMMAIRE

Une enquête effectuée en 1954 auprès de 1000 médecins de Californie révéla sept morts attribuées à la pénicilline. Ces chiffres projetés à l'échelle du total des médecins aux Etats-Unis fournirent un nombre présumé d'environ 1000 morts attribuables à la pénicilline jusqu'à cette date. Une enquête faite par le Public Health Service des Etats-Unis en 1953 et couvrant 7.7% des lits d'hôpital révéla 19 décès supplémentaires. En projetant ces chiffres à l'échelle de l'ensemble du pays, on obtiendrait un total de 247 morts dûes à la pénicilline dans les hôpitaux jusqu'en 1953.

La plupart des opinions compétentes estiment à environ 3 à 10% les cas de réactions allergiques à la pénicilline sans danger mortel dans une population prise au hasard. Si l'on évalue à 50 millions par an le nombre d'individus à qui on donne de la pénicilline, le total de ces réactions est très élevé.

Le présent rapport expose les résultats de cutiréactions à la "penicilloyl-polylysine"[1] effectuées sur 3667 malades de la clinique antivénérienne de la St. Louis Health Division. On considéra comme positive une réaction cutanée minima de 12 mm d'urticaire ou d'érythème; la plupart avaient plus de 15 mm de diamètre.

Les cutiréactions furent comparées aux tableaux antérieurs de réactions à un traitement à la pénicilline. Les malades furent divisés en trois groupes suivant leur passé et leur cutiréaction. Plus de 50% de ceux dont les cutiréactions étaient positives n'avaient pas présenté de réaction à la pénicilline.

Les résultats de ces observations semblent indiquer que les differences entre les réactions d'hypersensibilité immédiate ou à retardement à la pénicilline dépendent de la quantité d'acide pénicillénique dans l'injection, de la vitesse d'hydrolyse de la pénicilline en acide pénicillénique dans le corps et de la vitesse à laquelle l'acide pénicillénique se combine à la protéine.

RESUMEN

De acuerdo a un estudio de 1,000 médicos, llevado a cabo en California en 1954, vino a luz el hecho de que siete muertes fueron causadas por la penicilina. Estas cantidades se proyectaron luego, de manera que incluyan a todos los médicos de los Estados Unidos, y en ese año se llegó al número aproximado de 1,000 muertes cuya causa fue atribuida a la penicilina. En 1953, un estudio del Servicio de Sanidad Pública de los E.U. del 7.7% de las camas en los hospitales, dió a conocer 19 fatalidades más. Si se extiende esta proporción a todo el país, se verá que el número de muertes en los hospitales, fuera de las causadas por la penicilina, llega a 247 en 1953.

La mayoria de las autoridades predicen que la incidencia total de las reacciones de alergia a la penicilina sin peligro a la vida, serán más o menos del 3 al 10% de aquella gente escogida al azar. Si se supone que anualmente 50 millones de personas reciben penicilina, el número total de tales reacciones es muy elevado.

[1] *Polylysine + 15 molécules d'acide pénicillénique.*

El informe muestra el resultado de experimentos en la piel usando peniciloil-polilicin en 3,667 pacientes de la Clinica de Enfermedades Venéreas, de la Oficina de Sanidad de St. Louis. La reacción minima de la piel en forma de urticaria o eritema, considerada positiva, fue de 12 mm de urticaria o eritema, siendo la gran mayoría de más de 15 mm de diámetro.

Se correlacionaron a la terapéutica futura, experimentos de la piel con datos anteriores de reacciones a la penicilina. Se dividió a los pacientes en tres grupos, de acuerdo a su historial y a las reacciones de experimentos en la piel. Más del 50% de los pacientes con experimentos de piel positivos, no sufrieron reaceión a la penicilina.

Los resultados de estos estudios indican que las disimilitudes en las reaceiones hipersensitivas a la penicilina, ya sean inmediatas o tardías, pueden ser causadas por la cantidad de ácido penicilinico en la inyeceión, la proporción a la que la penicilina se hidroliza al ácido penicilinico en el cuerpo, y a cuánto ácido penicilinico se junta a las proteinas.

IN 1945 Cormia reported the first anaphylactic reaction to penicillin in man. Fever, urticaria, and skin eruptions had been observed as early as 1943, but these reactions were attributed to impurities in particular batches of penicillin. In 1946 Wilensky reported the first death following penicillin administration. In 1949 Walbott reported the second death following penicillin therapy. In the next 18 months 15 additional deaths secondary to penicillin were reported. Yet up to 1956 only 56 deaths attributable to penicillin were reported in the entire American literature. Since enough penicillin is being produced yearly to administer 3 million units to 150 million persons, in the United States alone, it seems obvious that allergic drug reactions were unrecognized or recognized and unreported. A survey of 1,000 California physicians in 1954 revealed seven additional deaths. Projecting these figures to include all physicians in the United States a figure of approximately 1,000 deaths attributable to penicillin up to that time was postulated. In a similar vein a U.S. Public Health Service Survey of 7.7% of the hospital beds in this country in 1953 revealed 19 additional fatalities. Projecting these figures to the whole country would put the number of hospital deaths secondary to penicillin at 247 up to 1953.

Estimates of the number of urticarial, serum sickness type, and other non-life threatening allergic reactions to penicillin vary considerably, depending on the length of time patients are followed and the criteria used to define a penicillin reaction. Most authors predict the total incidence of non-life threatening allergic penicillin reactions to be approximately between 3%–10% of a random population. Assuming that 50 million persons receive penicillin yearly, the total number of such reactions is very high.

In most clinical situations alternate antibiotics are available but are too cumbersome and expensive to use on a routine basis. These antibiotics could be used, where indicated, if there was a rapid, accurate, pre-treatment method of determining those patients who would develop allergic responses to penicillin.

Predetermining Sensitivity

At present there are two methods to detect patients who will react allergically to penicillin. The first is a history of penicillin sensitivity in the past. This has been the most reliable clinical guide to the presence of penicillin hypersensitivity, although some patients who exhibited allergic reactions in the past are able to tolerate subsequent penicillin without ill effects. The second method of pre-determining penicillin sensitivity is skin testing with penicillin G. Conjunctival, scratch and intradermal tests have been widely advocated. The usual techniques require special preparations of various dilutions of penicillin and are significant only when positive. A negative skin test is no guarantee against a subsequent reaction. Indeed severe reactions and deaths have resulted from the skin test itself. Skin testing with penicillin G despite some vocal advocates has not been generally accepted.

Basic Concepts

Before proceeding with a discussion of the chemistry of penicillin it might be well to review some of the basic concepts of immunology with respect to simple chemical compounds such as penicillin.

First, it is obvious that a simple substance such as penicillin with a molecular weight of about 400 cannot induce antibody formation by itself. It must combine with body protein, and the combination must be via a relatively stable covalent linkage.

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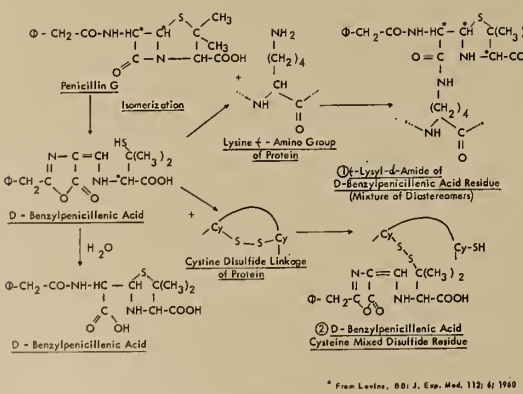
Second, the antibody produced by such a combination is specific for the simple group. The group (hapten) is therefore designated the antigenic determinant.

Third, there must be several determinant molecules linked to each protein molecule to render the combination antigenic.

Fourth, protein molecule fragments containing only a single determinant group and uncombined determinant, for example free penicillin, can competitively block the action of the polyvalent complex. This blocking action is specific for the determinant group involved and establishes the specificity of the reaction with considerable confidence.

These general principles apply not only to penicillin, but also to other sensitizing substances such as dinitro benzene and picric acid.

Penicillin G itself is incapable of undergoing irreversible reactions with proteins, low molecular weight amines, thiols or disulfides, in neutral aqueous solutions. It does form easily dissociable complexes with serum albumin. These complexes are probably incapable of inducing the allergic state. Since penicillin itself is incapable of reacting in the required manner, a breakdown product of penicillin might possess this necessary capacity. Penicillenic acid which forms from penicillin in neutral aqueous solution is a highly reactive molecule capable of coupling with epsilon amino groups and to a lesser extent with cystine-disulfide linkages. (Figure 1.)



* From Levine, Bull. J. Exp. Med. 112: 61 1960

Figure 1

Preliminary Studies

In a preliminary study penicillenic acid-globulin combinations were shown to give positive skin tests in patients with a history of penicillin sensitivity. However, these complexes produced systemic reactions in highly sensitive persons and were also capable of producing specific antibody in rabbits. It was therefore deemed unsuitable for routine skin testing in populations where the incidence of penicillin sensitivity might be high.

Homopolymers of amino acids below molecular weight 5,000 do not evoke antibody responses by themselves. Such polymers when conjugated with ample simple determinant groups were shown to elicit wheal and erythema skin reactions in patients sensitive to the determinant. These skin reactions could be specifically inhibited by the corresponding univalent hapten.

In a previous study polylysine of approximately 20 residues coupled with 15 molecules of penicillenic acid to form penicilloyl-polylysine showed promise as a skin testing reagent in pre-determining penicillin hypersensitivity in man.

Skin Test Results With Penicilloyl-Polylysine

This paper deals with the results of skin tests using penicilloyl-polylysine in 3,667 patients in the Venereal Disease Clinic of the St. Louis Health Division. All patients for whom penicillin therapy was ordered were routinely skin tested by injecting 0.05 ml. of the test solution containing 5.53 millimoles/ml. of penicilloyl-polylysine. The test material raised a wheal 8–10 mm. in diameter. After 15 minutes the skin test site was examined. The areas of urticaria and erythema were outlined with a ball point pen. Transparent tape was applied to the outline, removed and placed on a card giving a permanent record of the reaction. In patients with negative skin tests the test area is usually a small raised papule less than 8 mm. in diameter. The minimal urticarial or erythema skin response considered positive was 12 mm. of urticaria or erythema, with the vast majority being over 15 mm. in diameter.

Correlation With Previous Sensitivity

Skin tests were then correlated with histories of previous penicillin reactions and reactions to subsequent therapy. The results are as follows:

Group A consists of all patients in whom penicillin sensitivity is presumed to exist because of a history of previous penicillin allergy. Of the 3,667 total, 137 or 3.7% gave a history of previous penicillin sensitivity.

Group A′ consists of those patients with a history of penicillin sensitivity and a positive skin test. 117 or 86% of those with a history of

penicillin sensitivity exhibited positive skin tests. Most of the allergic reactions had occurred within the past 2 years. The longest duration from reaction to positive skin test was 15 years.

Group A'' consists of all those with a history of penicillin sensitivity and a negative skin test. 20 patients (14%) of those with a history of sensitivity had negative skin tests. Six of the patients in this group had questionable histories of sensitivity; one patient exhibited a positive skin test when retested 3 months later although there was no history of penicillin therapy between the two tests. Three patients in this group were given penicillin with no reaction.

If the 6 patients with questionable histories and the 1 patient whose skin test was subsequently positive are excluded, only 13 of 137 or 8% of patients with histories of penicillin allergies exhibited negative skin tests. Nevertheless this group does contain 2 patients in whom reactions were verified from hospital records, 6 in whom the histories were considered good, and 4 where the reactions were observed in our own clinic.

Patients With No Previous Sensitivity

Group B consists of those patients with no history of penicillin allergy. There were 3,530 patients in this group.

Group B' consists of those patients from Group B, who exhibited a positive skin test. 165 or 4.6% of the patients from Group B had positive skin tests. The original study design called for injections of penicillin in this group. The first 26 were so treated. 11 or 42% had reactions to penicillin. Five of these were severe anaphylactic reactions which required oxygen, vasopressors, steroids and adrenalin to avert a catastrophe. Six patients developed urticaria skin rashes and pruritis. Because of this experience the study design was altered to omit penicillin therapy in this group. 15 or 58% of these patients experienced no reaction to the injection.

Group B'' consists of all patients with no history of penicillin sensitivity and a negative skin test. All of these patients (3,365) were given penicillin injections. All patients were detained in the clinic for one-half hour following the injection. They were all instructed to return should any sign of penicillin allergy develop. It has been our experience that patients who develop hypersensitivity reactions return to the clinic even without the added caution. 3,359 patients (99.83%) experienced no reaction. There were six (0.17%) reactions in this group:

Case 1 developed hypotension and unconsciousness following an injection of 400,000 u of procaine penicillin and 0.5 grams of streptomycin. Subsequent skin tests with every known derivative of penicillin were negative but 3.5 mu of streptomycin produced tremendous urticaria and pruritis. 1.2 mu of penicillin given subsequently were tolerated without ill effects. We believe this reaction to have been due to streptomycin.

Case 2 had known systemic lupus erythematosis and developed urticaria, arthritis, and fever after the injection. Re-evaluation of the history revealed a penicillin reaction in the past. Repetition of the skin tests after the reaction subsided revealed positive skin tests.

Cases 3, 4, 5, and 6 were all delayed reactions all of which showed positive skin tests after the reactions subsided.

In over 90% of the positive skin tests we were able to inhibit the reaction with univalent hapten.

Summary of Findings

Pertinent to these findings are the observations of Levine who showed a commercial preparation of penicillin contained 0.18% penicillenic acid. My co-author Dr. Parker has shown a preparation of penicillin O which gave a positive skin test in a sensitive patient contained 11% penicillenic acid by weight.

These studies suggest that the differences in immediate and delayed hypersensitive reactions to penicillin may be a function of the amount of penicillenic acid in the injection, the rate at which penicillin is hydrolized to penicillenic acid in the body, and the rate of coupling of penicillenic acid to protein.

It is noted that over 50% of patients with positive skin tests had no reaction to penicillin. This may represent:

1. Slow degradation to penicillenic acid so that polyfunctional protein conjugates do not accumulate in sufficient quantity.

2. Accumulation of univalent hapten which would block the reaction between polyfunctional penicilloyl-protein conjugates and anti-penicilloyl antibody.

3. Free penicillin and penicilloic acid which would also block this reaction.

The outcome of any injection of penicillin

may therefore be a balance of a series of competitive reactions (Figure 2):

1. Rearrangement of penicillin to penicillenic acid.

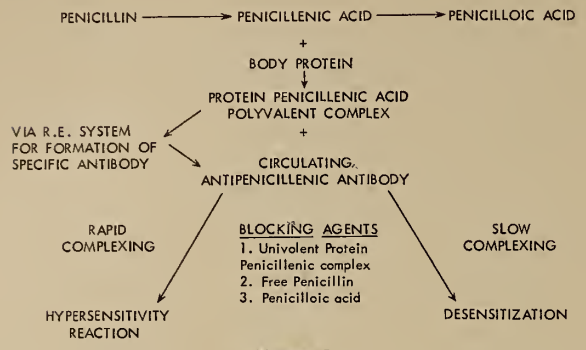


Figure 2

2. Coupling of penicillenic acid with protein.
3. Hydrolysis of free penicillenic acid to penicilloic acid.

Slow complexing with proteins may succeed in removing antibody and desensitize, or rapid coupling may produce systemic reactions.

Six patients (15%) of those with no history of sensitivity and negative skin tests developed reactions when challenged with penicillin. One patient was sensitive to the concomitantly given streptomycin. A second developed an acute exacerbation of systemic lupus. This case is especially interesting because of the report of Walsh and Zimmerman who found L.E. cells in the marrow and blood of a patient following a severe penicillin reaction. The remaining 4 patients had positive skin tests when retested. This may represent:

1. Initial sensitization; that is, no antibody present before the injection but a reaction when sufficient antibody has been produced to react with antigen that is still uneliminated.
2. Low levels of circulating antibody not detected by present methods.
3. Hypersensitivity to a different determinant.
4. Misapplication of the skin test. That is, if the test solution is injected subcutaneously rather than interdermally weakly positive reactions may be missed.

Biphasic Nature of the Toxic Reaction to Penicillin in Guinea Pigs

DAVID H. HOLLANDER, M.D.

ABSTRACT

With doses of over 2,000 units of penicillin, 80 growing guinea pigs were found to enter a first phase of self-starvation, followed by a second phase of transient recovery. The latter phase is the one of greater mortality. Larger doses prolonged only the first phase. "Phase two" was of about 10 days. Dead animals showed distended cecums.

The mechanism of this toxic reaction is not well understood. Mortality may be due to starvation and a paralysis of the ileum mediated by alterations in the bacterial flora. Recovered animals usually survive reinoculations with the same amount, and also reinoculations with increasingly larger amounts.

There is thus the possibility that the pattern of total reaction is influenced by a protective antibody or antitoxin, and this possibility is being further investigated.

To sum up, it has been found that the reaction of young guinea pigs to small doses of penicillin can be divided into two phases. If the animal survives the first—and frequently fatal—reaction, a definite but less obvious illness persists until about the tenth day.

SOMMAIRE

Quatre-vingts cochons d'Inde en période croissante, auxquels on avait administré des doses de pénicilline supérieures à 2,000 unités, furent atteints d'une première phase, caractérisée par l'autofamine, puis d'une deuxième phase, au cours de laquelle la guérison transitoire se manifesta. Cette deuxième phase est celle de la plus grande mortalité. Des dosages accrus n'eurent pour effet que de prolonger la première phase. La "phase numéro deux" dura une dizaine de jours. Les animaux crevés exhibèrent des cecums dilatés.

Le mécanisme de cette réaction toxique n'est pas très bien compris. La mortalité peut être due à l'autofamine ainsi qu'à une paralysie de l'iléum, influencée par des modifications de la flore bactérienne. Les animaux guéris survivent généralement aux réinoculations du même dosage, et également aux réinoculations par dosages progressivement augmentés.

Il existe donc la possibilité que le schéma de réaction totale soit influencé par une antitoxine ou un anticorps protecteur. Des enquêtes plus approfondies se poursuivent à ce sujet.

En conclusion, on peut affirmer qu'il a été démontré que la réaction de jeunes cochons d'Inde envers de petites doses de pénicilline peut se diviser en deux phases. Si l'animal survit à la première réaction, souvent fatale, une maladie déterminée, quoique moins apparente, persiste jusque vers le dixième jour.

RESUMEN

Al aplicarse dosis de más de 2,000 unidades de penicilina a ochenta conejillos de Indias en estado de desarrollo, se vió que éstos entran en un primer estado de inanición, seguido de una segundo, de recuperación pasajera. La mortalidad es mayor en este último. Al aplicarse dosis más grandes, sólo prolongaron el primer estado. El "segundo estado" duró unos diez dias. Los intestinos ciegos de los animales muertos se encontraron dilatados.

No se comprende del todo el mecanismo de esta reacción tóxica. La mortalidad puede que se deba a la inanición y a la parálisis del ileon, interruptido por alteraciones en la flora bacterial. Los animales repuestos, generalmente sobreviven la misma cantidad de reinoculaciones y también de cantidades cada vez más mayores.

De esta manera, existe la posibilidad de que la forma de la reacción total, se halla bajo el influjo de anticuerpos o antitoxinas protectivos; esta posibildad está siendo investigada aún más.

En resumen, se ha visto que la reacción de los conejillos de Indias a dosis pequeñas de penicilina, trae consigo dos estados. Si el animal sobrevive la primera reaccion que frecuentemente es fatal, persiste por diez dias una enfermedad, que aunque indefinida, es menos evidente.

HAMRE FIRST reported in 1943 that guinea pigs are extremely susceptible to penicillin. Amounts of penicillin which can be given to most other species without causing symptoms, cause severe reactions and often death in guinea pigs. In this study, 24 guinea pigs died out of 41 which were injected with 10,000 units of penicillin G intraperitoneally. Other types of penicillin and other routes of injection produce similar effects.

When the weight response was followed in 80 young guinea pigs injected with penicillin,

Dr. Hollander is Pathologist at Montebello State Hospital, Baltimore, Maryland. *The weight chart (Figure 1) used with this paper is from Antibioties and Chemotherapy, Vol. 12, No. 4, April 1962.*

it was found, unexpectedly, that the disturbance of the growth curve can be separated into two phases. Various features of this biphasic reaction are illustrated by the weight chart (Figure 1). This is the record of an animal which was inoculated with 100,000 units intraperitoneally.

It is seen that there was a rapid and steady gain of weight during the two week period prior to the injection of penicillin. This type of growth is characteristic for healthy young guinea pigs.

Experiment Phase One: Self Starvation

The injection of penicillin regularly initiates a period during which the guinea pig refuses to eat or drink, does not pass feces and loses weight rapidly. In Figure 1 this period of self-starvation is designated as "Phase One." The weight loss continues for about two days after doses of 2,000 to 10,000 units, or for about 3 days after 100,000 units. With doses smaller than 2,000 units there is little, or no interruption in the regular growth curve.

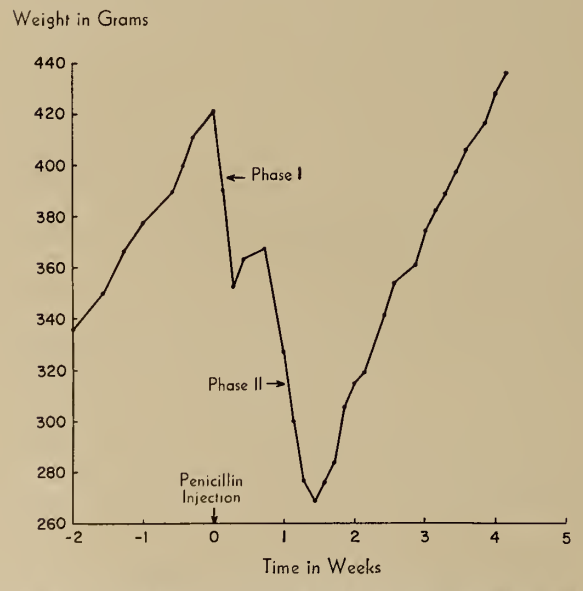


Figure 1. Weight chart showing the biphasic nature of the toxic reaction to penicillin in a guinea pig

After two or three days of rapid weight loss the animals become more active, and begin to drink a little water. Some, such as the one whose weight chart is illustrated, also pass feces, start eating and begin to gain weight. However this recovery period is also the time of greatest mortality. The animals which die, do not pass feces, and at autopsy are found to have greatly distended cecums. Altogether 38 out of 69 animals injected with from 2,000 to 100,000 units of penicillin died between the third and the sixth days. Within this dose range the mortality did not seem to vary significantly. Paradoxically, animals survive longer after larger doses. This appears to be because deaths occur during the recovery period and not during the period of starvation. The period of starvation is longer after larger doses, the recovery period is later, and death therefore occurs correspondingly later.

Experiment Phase Two: Continued Reaction and Recovery

Guinea pigs which survive the critical period following Phase One begin to pass feces on the third or fourth day, and begin to eat and drink. Nevertheless these surviving animals have ruffled fur, and poor muscle tone, and remain listless and apathetic. They appear, in fact, more ill than during Phase One, although they eat and drink a little, and pass some feces. There is considerable variation in the severity of this phase of the reaction and in the amount of the weight disturbance. Most either fail to gain weight or actually lose weight, as in Figure 1. This period of continuing reaction, designated "Phase Two," lasts until about the tenth day, when a rather sudden change or crisis occurs, and normal growth is then resumed. The ruffled fur becomes smooth, the muscle tone improves, and the animal regains a healthy appearance, although still weak and thin.

The mechanism of the toxic reaction to penicillin in the guinea pig is not well understood. Many believe that the reaction is related to changes in the intestinal bacterial flora. The mortality following Phase One may be explained on the basis of self-starvation, and paralytic ileus secondary to alterations in the bacterial flora. It is of interest that recovered animals can tolerate challenge reinoculation doses of the same amount, and that animals can be made progressively more tolerant to increasingly large doses. This suggests that the reaction may be influenced by a protective antibody or antitoxin. Further investigation of this possibility is in progress.

Summary

In summary, it has been found that the reaction of young guinea pigs to small doses of penicillin can be divided into two phases. If the animal survives the first and frequently fatal reaction, a second definite, but less obvious illness persists until about the tenth day.

Further Studies on the Survival of Virulent *Treponema Pallidum* in Synthetic Media

GEORGE KIMM, M.D.

ABSTRACT

It is generally agreed that verified cultivation of virulent T. pallidum would help resolve many important problems, such as the development of a simple, specific diagnostic test, development of a vaccine for active immunity, antibiotic sensitivity-resistance characteristics, and classification and pathology of the treponematoses.

During the first four decades following discovery, efforts to grow T. pallidum were made in a multiplicity of media, including anaerobic bacteriological media, such anaerobic media plus normal or abnormal body fluids, and such media plus normal tissue or tissue extracts. During this period cultured strains of non-virulent treponemes became established. A search was undertaken for factors common to virulent and non-virulent treponemes.

During the fifth decade after discovery selective studies of the basal requirements for survival in vitro were carried out with some success. Studies by Nelson, Steinman, Weber, Doak, Freedman and Clark are described.

In our laboratory it was decided to investigate the nutrition of T. pallidum by utilizing the salt solutions and chemically-defined media of tissue cultures which we developed previously.

About two-thirds of a potential 60 ingredients have been combined in an effort to grow T. pallidum in an all-synthetic medium, or a synthetic medium supporting tissue culture, or in a still more complex medium. Cultivation has not been seen as yet but results so far obtained with combining known chemicals give some indications of this as a potentially successful route.

SOMMAIRE

Il est généralement admis que la culture sous contrôle du pallidum T. virulent aiderait à résoudre beaucoup de problèmes importants, tels que la mise au point d'un test de diagnostic simple, spécifique, la mise au point d'un vaccin à immunité par anti-corps, d'un antibiotique ayant comme caractéristique la résistance à la sensibilisation, et, enfin, la classification et la pathologie des tréponématoses.

Durant les quatre premières périodes de 10 jours suivant la découverte, des efforts furent accomplis pour faire croître le pallidum T. dans une multiplicité de milieux, y compris les milieux bactériologiques anaérobiques, de tels milieux anaérobiques plus des fluides corporels normaux ou anormaux, et de tels milieux plus des tissus ou extraits de tissus normaux.

Durant cette période, des filtrages de culture de tréponèmes non-virulents furent faits. Des recherches furent entreprises sur les facteurs communs aux tréponèmes virulents et non-virulents.

Durant la cinquième période de dix jours suivant la découverte, des études en vue de sélectionner les conditions de base requises pour la survivance "in vitro" furent effectuées avec quelque succès. On relate les études faites par Nelson, Steinman, Weber, Doak, Freedman et Clark.

Dans notre laboratoire, il fut décidé de faire une enquête sur la nutrition du pallidum T. en utilisant les solutions salées et les milieux chimiquement définis des tissus de culture que nous avions mis au point au préalable.

Les deux-tiers environ d'un potentiel de 60 ingrédients ont été combinés pour s'efforcer de cultiver le pallidum T. dans un milieu entièrement synthètique, ou dans un milieu synthètique entretenant un tissu de culture, ou dans un milieu encore plus complexe. Jusqu'ici, la culture n'a pu être observée, mais les résultats obtenus pour le moment par la combinaison de produits chimiques connus permettent d'entrevoir la route du succès.

RESUMEN

Se está de acuerdo generalmente que el cultivo comprobado del Treponema palido virulento ayudaría á resolver muchos problemas importantes, tales como el desarrollo de una prueba de diagnóstico simple y especifica, el desarrollo de una vacuna para inmunidad activa, un antibiótico con caracteristicas de resistencia a la sensibilidad, y la clasificación y patología de la treponematosis.

Durante las primeras 4 déeadas que siguieron a su descubrimiento se realizaron esfuerzos para cultivar el Treponema palido en una multitud de medios, incluyendo el medio anaeróbico bacteriológico, tal medio anaeróbico, más los líquidos del cuerpo normales ó anormales y ese medio más el tejido normal ó extractos del tejido. Durante este período se establecieron tipos de cultivo de treponemas no virulentos. Se llevó á cabo una búsqueda de factores comunes a treponemas virulentos y no virulentos.

Durante la quinta década después de los estudios seleccionados de los requisitos básicos para la supervivencia en vitro fué llevada á cabo con algún éxito. Se describieron los estudios realizados por Nelson, Steinman, Weber, Doak, Freedman y Clark.

En nuestro laboratorio se decidió investigar la nutrición del Treponema palido utilizando soluciones de sal y un medio quimicamente definido de los cultivos de los tejidos que hemos desarrollado previamente.

Aproximadamente dos tercios de un potencial de 60 ingredientes se han combinado en un esfuerzo para cultivar el Treponema palido en un medio todo sintéctico ó un medio sintético que tolera un cultivo de tejidos, ó aún en un medio más complejo. El cultivo no se ha visto todavía pero los resultados hasta ahora obtenidos con los productos químicos conocidos combinados dan alguna indicación de esto como un camino potencialmente afortunado.

THE NUMBER OF highly skilled workers who have attempted to culture virulent *Treponema pallidum in vitro* is legion. It is generally conceded, however, that true success has yet to be achieved.

I should like to review briefly some of the findings in this field over the past five and one-half decades. Later in my paper I should like to mention some of our own studies on the survival of virulent *T. pallidum* in synthetic media.

Treponema pallidum was discovered relatively late for such a widespread and serious disease as syphilis. By the time of its discovery in 1905, cultural techniques were already well established for other pathogenic microorganisms. Claim of successful cultivation within a year of its discovery was soon found to be premature. Virulence was lacking and cultured organisms today resemble, or have come to resemble, saprophytic spirochetes found in man. One school of thought is inclined to believe that the reported culture of virulent organisms was actually the survival of some of the initial inoculum and not due to multiplication; another school believes that cultivation of so-called virulent treponemes was actually cultivation of similar commensal organisms. It is generally agreed that verified cultivation of virulent *T. pallidum* would help resolve this and other problems of importance—such as the development of a simple, specific diagnostic test, development of a vaccine for active immunity, (treponemal) antibiotic sensitivity-resistance characteristics, and classification and pathology of the treponematoses.

Findings of Early Experiments

During the first four decades following discovery, efforts to grow *T. pallidum* were made in a multiplicity of media which included anaerobic bacteriological media, such anaerobic media plus normal or abnormal body fluids, and such media plus normal tissue or tissue extracts. Fertile eggs or chick embryos and animal tissue culture also had their trial. While lacking complete success, this period gave birth to contributions which became more crystallized during the succeeding decade. For instance, it was learned, that the organism was an anaerobe and that it could be passaged readily in a rabbit or stored for years at a temperature of minus 78° centigrade. In the first four decades cultured strains of non-virulent treponemes became established; more selective studies of the nutritional requirements of the non-virulent strains were undertaken in a search for factors common to virulent and non-virulent treponemes; in such a way it was found that "refined" albumin could replace serum (Little and Subbarrow, 1944). By happy chance another useful tool came from further afield, when J. H. Brewer described a "clear liquid medium for aerobic cultivation of anaerobes" in 1940. Brewer's medium did not require to be heated before use, required no petrolatum seals, anaerobic jars, or other equipment. This medium, of course, was not developed specifically for *T. pallidum*. It did, however, help set the stage for a more specific study of "factors affecting the survival of (virulent) *Treponema pallidum in vitro*" by 1948.

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Experiments With Virulent *T. Pallidum*

The fifth decade was the beginning of a successful shift of emphasis from the non-virulent to the virulent organism. Selective studies of the basal requirements for survival *in vitro* of virulent *T. pallidum* were not only recognized as necessary but were also carried out with some success. This can be illustrated on several figures and tables, with material extracted from reports of some of the authors on the subject:

Nelson and Steinman (1948) used virulent *T. pallidum* extracted from rabbit tissue in a modified Brewer thioglycollate medium including an isotonic phosphate buffer and crystalline bovine albumin. They found that in terms of motility the organisms had a half-life of less than 12 hours in air, 24 hours under 100% nitrogen or hydrogen and 96 hours under 5% CO_2 with 95% N_2 when incubated at 27° or 32° C. But at 37° C. the survival period was less than 24 hours. Nelson (1948) later reported more beneficial results for study were obtained at 30° C.

Weber (1960) published a table of survival time in days for 50% retained motility when

these virulent organisms were at temperatures between 20 and 40° C. in a more complex medium. (Table 1.)

Table 1. Effect of temperature on survival

(Selected from Weber)

Temperature, deg. C.	STD_{50}
20	[1] 16. 6
25	[1] 12. 5
30	[1] 11. 1
35	[1] 6. 4
40	[1] 4. 0

[1] Calculated survival time in days in which 50 percent of the organisms retain motility.

Nelson (1948) showed the beneficial effect of adding crystalline bovine albumin in amounts up to 4% to a basal medium of Brewer's thioglycollate medium. (Table 2.) The incubation was at 32° C., under 95% nitrogen and 5% carbon dioxide.

Table 2. Effect of adding crystalline bovine albumin to basal Brewer's thioglycollate medium

(Selected from Nelson)

Cryst. bovine albumin, grams per 100 ml.	Organisms motile (percent)			
	0 hour	48 hours	96 hours	144 hours
0 (control)	86	0	0	-------
0. 5	86	66	0	0
1. 0	86	66	54	0
2. 0	86	72	50	10
4. 0	86	70	70	20

A beneficial effect of inorganic phosphate in combination with a CO_2-bicarbonate system was also observed by Nelson. The phosphate was incorporated as a pH buffer and he stated a range of 6.8 to 7.8 was compatible with good survival but that results appeared somewhat better at pH 7.0. He also stated that the CO_2-bicarbonate system could be eliminated by the addition of pyruvate or oxaloacetate.

Nelson demonstrated that a small but indeterminate amount of tissue extract from the host rabbit was necessary for survival unless it was replaced by a saline extract of normal (animal) testicular tissue or Simm's ultrafiltrate of serum (Figure 1). Rice and Nelson subsequently isolated the active principle from beef serum.

Nelson demonstrated the effect of 0.001 M. concentrations of glutathione, cysteine, and ascorbic acid on survival at 30° C. and under 95% nitrogen–5% carbon dioxide.

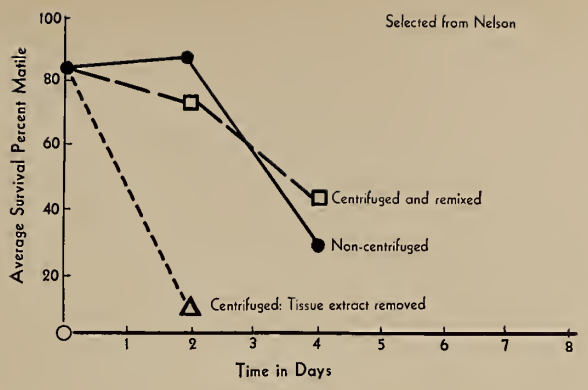

Figure 1

Weber (1960) later worked extensively with sulfhydryl compounds. In a more complex medium augmented with gelatin hydrolysate, a vitamin mixture and other measured chemicals he got best results with 0.006 M. concentrations of glutathione or cysteine, when using one at a time or supplementing with another reducing agent such as ascorbic acid. Weber further determined that mercaptosuccinate and homocysteine, besides the already known sodium thioglycollate, were equally effective and came to the conclusion that sulfhydryl compounds containing a carboxyl group and in the non-oxidized state were most specific for survival *in vitro*.

Doak, Freedman, and Clark (1959, 1961) have made extensive investigations of the ionic requirements of virulent *T. pallidum*. They found that both sodium and potassium ions are beneficial and, that with mixtures starting with a sodium-free or a potassium-free medium, a sodium level of 0.029 M. was optimal and a potassium level of 0.01 M. minimal. Both lithium and ammonium ions are partially able to replace sodium. Rubidium can replace potassium and cesium partially so. Potassium may be a growth factor. Washed spirochetes were used for some of the assays with these various ions.

Subsequently, using spirochetes resin-treated to remove divalent metal ions, they found that calcium, strontium, or barium came closest to restoring motility lost during the resin treatment. Magnesium was reactive to a lesser degree.

As a general reference, may I mention a WHO Monograph, *Treponemal Pallidum*, WHO/VDT/RES/8 April, 1961, which was prepared by the WHO Secretariat, Consultant on Venereal Diseases and Treponematoses, Dr. R. R. Willcox. It is recommended by your

Programme Committee and lists 54 pages of references.

Testing Nutrition Requirements of *T. Pallidum*

While viewing the problem of the *in vitro* cultivation of the virulent organism we came to the belief that the determination of the precise nutritional requirements of *T. pallidum* would be greatly facilitated by the development of completely chemically-defined media. Furthermore, in some early exploratory experiments there appeared to be a general similarity between the complexity of the nutritional requirements of *T. pallidum* and those of animal cells cultivated *in vitro*. Accordingly, it was decided to investigate the nutrition of *T. pallidum* by utilizing the salt solutions and chemically-defined media of tissue cultures developed previously in our laboratory. I would like to briefly mention, now, some of our experience in putting these ideas to a test.[1]

If *T. pallidum* is extracted in Nelson's medium from infected rabbit tissue and inoculated into various media, curves representing the percent survival with time may be plotted graphically. (Survival at 35° C. in Nelson's and a synthetic tissue culture medium, M291, is illustrated in Figure 2.) In terms of a 50% motility

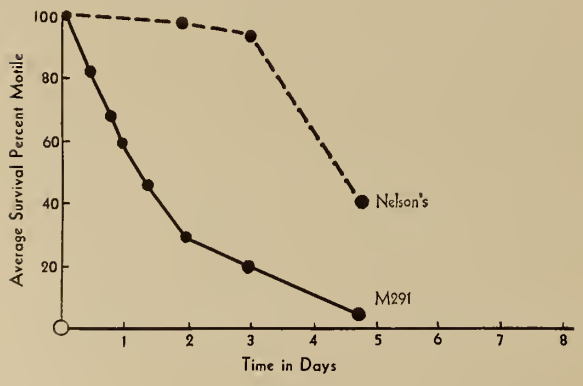

Figure 2

rate, one can observe that the spirochetes survive only about a day and a half in M291 as compared with four to five days at 35° C. in Nelson's medium. Tissue cells, on the other hand, survive 35 to 45 days in M291 without subculture.

[1] See Kimm, G. E., Allen, R. H., Morton, H. J., and Morgan, J. F.: Studies on the *in vitro* survival of virulent *Treponema pallidum*. I. Methodology and basic synthetic medium. Am. J. Hyg., 75: 339-346, 1962.

It appears that there is an incompatibility between the 60 ingredient M291 as a whole and *T. pallidum*. Hence it was decided to try rebuilding M291 with *T. pallidum* as the test organism:

The salt base used in preparing synthetic media for tissue culture is glucose-free, Hanks' modified, Tyrode's solution. (Figure 3.) Sur-

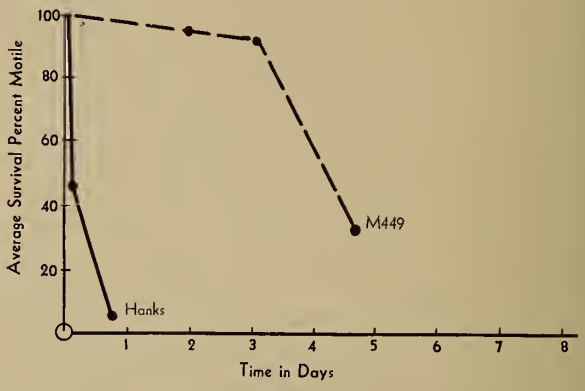

Figure 3

vival in this, eight-ingredient Hanks' solution is only about two hours in terms of 50% motility, but since it is the salt base for synthetic tissue culture media, it was adopted as an initial base for synthesis. Subsequent experiments lead to combining Hanks' solution with glucose, sodium pyruvate, L-cysteine HCl and glutathione. This combination, labelled M449, lengthened the survival period to four to five days at 35° C. The 12 ingredient M449, in turn, was used as a base for further synthesis until now we have reached a total of 39 ingredients without loss of compatibility in M567 (Figure 4.) It is intended that M567, or a similar complex, will form our third major stepping off point.

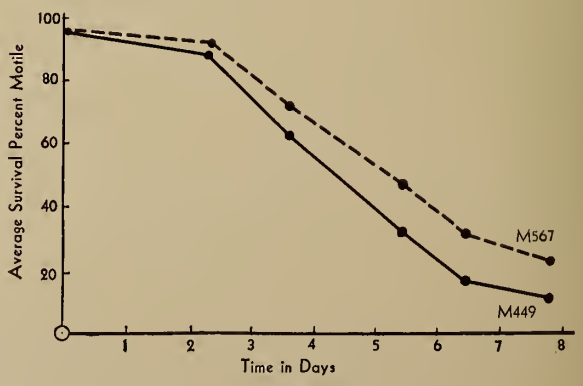

Figure 4

In summary I would like to state that about two-thirds of potentially 60 ingredients have been combined in an effort to grow *T. pallidum* in (a) either an all-synthetic medium, or (b) a synthetic medium supporting tissue culture, or (c) in a still more complex medium. Propagation has not been observed up to this stage, but results so far obtained with combining known chemicals give some indications of this as a potentially successful route.

Epidemiologic Treatment of Contacts to Infectious Syphilis

M. BRITTAIN MOORE, JR., M.D.

ABSTRACT

In the control of syphilis the importance of prompt examination of all contacts of patients with infectious syphilis is universally recognized. After examination immediate epidemiologic treatment of recent, clinically negative contacts is essential.

Present worldwide resurgence of syphilis has caused new interest in epidemiologic or prophylactic treatment.

Also, will widely used treatment of uncomplicated gonorrhea in the male eliminate concomitant incubating syphilis?

These problems prompted the introduction in 1961 of a cooperative clinical study by V.D. Branch of Communicable Disease Center, with clinics in Los Angeles, Chicago, Philadelphia, Miami, and Houston participating.

As a result of experiments, excellent results in preventing the development of syphilis in gonorrhea patients were obtained with 2,400,000 units of benzathine penicillin G given in one treatment in two intramuscular injection sites.

SOMMAIRE

Dans le contrôle de la syphilis, l'importance de l'examen prompt de tous les contacts de malades atteints de la syphilis infectieuse, est universellement reconnue. Apres examen, le traitement épidémiologique immédiat des contacts récents, cliniquement négatifs, est indispensable.

L'essor actuel de la syphilis dans le monde entier a occasionné un intérêt accru à l'égard du traitement épidémiologique ou prophylactique.

D'autre part, le traitement en usage général de la gonorrhée sans complications chez le mâle éliminera-t-il la syphilis parallèle en voie d'incubation?

Ces problèmes ont motivé l'inauguration en 1961 d'une étude clinique coopérative par la Branche des maladies vénériennes du Centre de maladies communicables, avec la participation de cliniques situées à Los Angeles, Chicago, Philadelphie, Miami, et Houston.

Par suite des expériences menées au cours de cette étude, d'excellents résultats dans la prévention du développement de la syphilis chez des malades atteints de gonorrhée, furent obtenus par l'emploi de 2.400.000 unités de pénicilline benzathine G administrée au cours d'un seul traitement par injection intramusculaire en deux endroits différents.

RESUMEN

En el control de la sífilis la importancia de un pronto examen de todo contacto de los pacientes con sífilis infecciosa está universalmente reconocida. Luego del examen el tratamiento epidemiológico inmediato de contactos recientes clínicamente negativos es esencial.

El presente resurgimiento mundial de sífilis ha causado nuevo interés en el tratamiento epidemiológico o profiláctico.

¿Además, podrá el extensamente usado tratamiento de gonorrea simple en el hombre eliminar la sífilis acompañante en estado de incubación?

Estos problemas dieron origen a la introducción en 1961 de un estudio clínico cooperativo por la Sección de Enfermedades Venéreas del Centro de Enfermedades Contagiosas, con la participación de clínicas en Los Ángeles, Chicago, Filadelfia, Miami y Houston.

Como resultado de experimentos, se obtuvieron excelentes resultados en la prevención del desarrollo de sífilis en pacientes de gonorrea con 2,400,000 unidades de penicilina G (benzatina) dadas en un tratamiento en dos lugares con inyecciones intramusculares.

IN THE CONTROL of syphilis the importance of prompt examination of all contacts of patients with infectious syphilis is universally recognized. After examination immediate epidemiologic treatment of clinically negative, recent contacts is an essential part of any adequate control effort.

Knowledge that treatment will be given to any contact exposed to early syphilis within the past three months does not relieve the examining clinician of the responsibility for taking a careful history and performing a thorough physical examination. Hidden mucocutaneous lesions, histories of past lesions suggestive of early syphilis, or recent, possibly suppressive antibiotic therapy that are brought to light on a second clinic visit after a reactive serologic test has been reported never speak well for the examining physician.

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The present worldwide resurgence of syphilis has caused new interest in epidemiologic or prophylactic treatment of this disease. Expense of medication, mode and frequency of administration, and side effects all present problems in the large as well as the small control program. The need for determining adequate minimal epidemiologic treatment schedules for penicillin as well as alternate antibiotics is apparent.

In addition, what of the seronegative gonorrhea patients without lesions who may be incubating syphilis at the time they receive treatment? Will widely used treatment schedules for uncomplicated gonococcal urethritis in the male eliminate concomitant, incubating syphilis?

These problems prompted the introduction early in 1961 of a cooperative clinical study by the Venereal Disease Branch of the Communicable Disease Center. Venereal disease clinics in Los Angeles, Chicago, Philadelphia, Miami, and Houston are participating.

Method of Study

The cooperating clinics were requested to use four schedules of treatment and a placebo, alternately, on all named sex contacts to infectious syphilis, residing in the area, who were clinically negative for syphilis on initial examination. If a reactive serologic test at time of initial examination and subsequent workup established the presence of syphilis, the patient was to be dropped from the study. All others were to be followed for a period of three months, with physical inspection for early lesions every two weeks and serologic tests for syphilis monthly.

The four treatment schedules included two of benzathine penicillin G, 2,400,000 units and 600,000 units, each administered in a single treatment; 600,000 units of aqueous procaine penicillin G; and intramuscular tetracycline phosphate, 1 gram total dosage administered in two 500-mgm. injections on consecutive days. For placebo, the special diluent for the tetracycline phosphate (glycerol acetal plus lidocaine) was utilized and administered on the same schedule as the tetracycline.

Results of Study

As of July 1962, 748 contacts meeting the criteria for study had been treated and observed for periods ranging from two weeks to more than three months. By schedule, the number treated varied from 131 to 182 and observation in the third month or later ranged from 83 to 89%. More patients received placebo or 2,400,000 units of benzathine penicillin G than were treated on the other three schedules since one of the participating clinics (Houston) employed only these two routines.

The cumulative percentage of contacts developing syphilis throughout the 3-month observation period is shown in Figure 1, by sched-

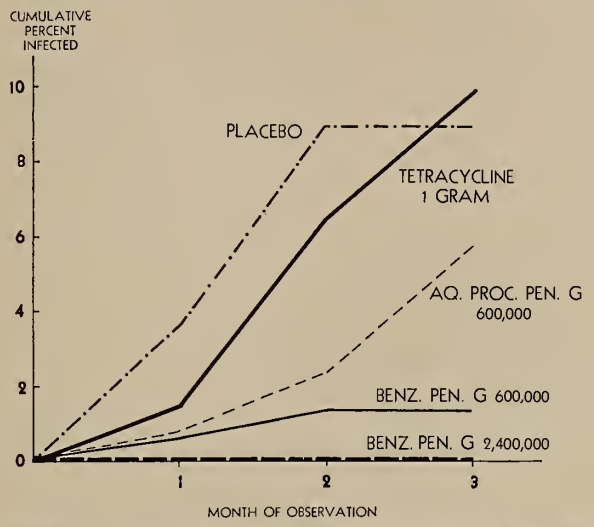

Figure 1. Cumulative percentage of contacts developing syphilis after epidemiologic treatment

ule of treatment. There are several points of interest here: First, the rate of infection following placebo, 9.0% (this varied from 15% if exposure was within one month to 3% if exposure was 2–3 months prior to initial examination); second, the apparently complete inadequacy of 1 gram of tetracycline phosphate in aborting incubating syphilis; and third, 2,400,000 units of benzathine penicillin G is the only penicillin schedule evaluated in this study which appears to be 100% effective as epidemiologic treatment. Aqueous procaine penicillin G in a dosage of 600,000 units did little more than prolong the incubation period. This is even more obvious in Figure 2.

Due to lapses in observation and possibly to the absence or difficulty of detecting lesions, particularly in the female, infection was not always diagnosed in the primary stage. In all but four instances, however, it was possible to determine with a fair degree of accuracy in which month of observation syphilis could have been detected. In the four questionable cases (three secondary and one early latent), all of which were treated with tetracycline, distribution by month has been made according to the distribution of the known cases.

Although the number of cases is small, a total of 35 in which syphilis developed, there

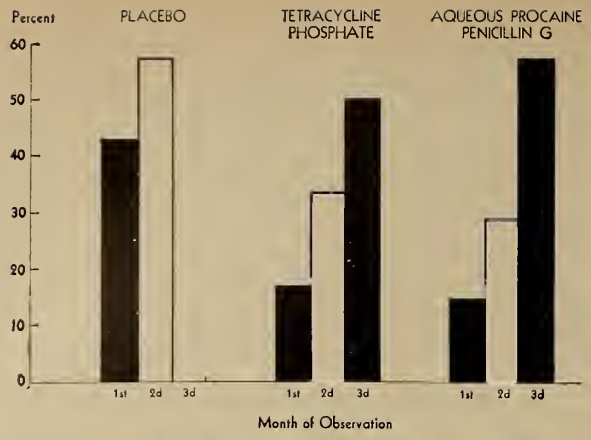

Figure 2. Development of syphilis by period following epidemiologic treatment

does appear to be a definite pattern. Forty-three percent of the infections in the placebo group developed within the first month of observation; the remainder during the second month. In contacts treated with tetracycline, the appearance of syphilis was slightly delayed, half of the infections developing in the second month of observation and one-third in the third month. In patients treated with aqueous procaine penicillin G, the majority of infections were not evident until the third month (60–90 days) following treatment.

It has been suggested that possibly the delayed infections following tetracycline and aqueous procaine penicillin might in actuality be infections from re-exposure, since neither drug furnishes the protection provided by benzathine penicillin G. The obvious answer to this theory is the question: "What protection did the placebo confer?"

Comment

Early animal studies by Eagle, Magnuson and Fleischman (*1*) suggested a direct relationship between the period of time following infection and the amount of penicillin required to cure the disease. Cutler, Olansky and Price (*2*) in 1955 reported good results in the treatment of seronegative, darkfield positive primary syphilis with 300,000 units of procaine penicillin G in oil with aluminum monostearate (PAM). Because of this information it has been widely felt that 600,000 units of penicillin G given intramuscularly in the treatment of gonorrhea would be ample to cure seronegative, incubating syphilis acquired at the same time, or prior to, the gonorrhea being treated. The results with the two intramuscular penicillin preparations at the 600,000-unit level were therefore unexpected and alarming. The disappointing results of the two-dose intramusclar tetracycline prophylaxis also are unfortunate but are easier to explain than the penicillin failures.

Because of these failures 1,200,000 units of PAM is currently being given to all eligible contacts at the Houston, Texas, Social Hygiene Clinic. Depending upon the results of this pilot evaluation, this or other schedules will be evaluated more widely in other centers. In addition there is need for more studies with alternate antibiotics in the treatment of incubating syphilis.

Summary

In a cooperative clinical study involving 748 clinically and serologically negative patients in five treatment centers, several intramuscular schedules were evaluated in the treatment of persons exposed to infectious syphilis. Results obtained were compared with a placebo similar in appearance to one of the preparations and given in like manner.

Excellent results were obtained with 2,400,000 units of benzathine penicillin G given in one treatment in two intramuscular injection sites. Intramuscular injections of 600,000 units of aqueous procaine penicillin G and of benzathine penicillin G and an intramuscular tetracycline preparation given in a dosage of 500 mgm. on two successive days gave unsatisfactory results. Fourteen of 161 patients or 9.0% (cumulative rate based on number observed for varying periods) given placebo therapy developed syphilis during the three-month follow-up period.

Actually 35 persons developed syphilis out of 748 followed, whether given placebo or inadequate antibiotic treatment. This is 4.7%, of the total followed. If we use the data accumulated with the placebo group and apply it to all contacts in the study, 67 persons would have developed syphilis if not treated with 2,400,000 units of benzathine penicillin G.

References

(*1*) Eagle, H., Magnuson, H. J., and Fleischman, R.: Relation of the size of the inoculum and the age of the infection to the curative dose of penicillin in experimental syphilis, with particular reference to the feasibility of its prophylactic use. J. Exper. Med., 85: 423–440, 1947.

(*2*) Cutler, J. C., Olansky, S., and Price, E. V.: Treatment of early syphilis: Results with penicillin G procaine and two percent aluminum monostearate. A.M.A. Arch. Derm, 71: 239–244, 1955.

Development of the Concept of Mass Treatment of Syphilis With Penicillin

R. C. ARNOLD, M.D.

ABSTRACT

In 1943 five rabbits with early scrotal chancres were successfully treated with penicillin given intravenously. Four men with darkfield positive, seroreactive primary syphilis volunteered for the experiment. Each man was given 25 thousand units of water soluble sodium penicillin intramuscularly every four hours for eight days.

It was necessary to find the causative factors that produce variations in the therapeutic response of human syphilis to penicillin. A detailed individual study was made during the first 48 hours of treatment to record clinical manifestations and immediate or delayed reactions to therapy. Darkfield studies every 2 hours revealed rapid diminution in number and motility of T. pallidum with complete disappearance in less than 20 hours. Within 24 hours the primary lesion of each patient changed to a clean ulcer. A favorable therapeutic effect in man was indicated by serological and clinical responses.

Basic factors of total dosage, frequency of injections and duration of continuous treatment had to be evaluated. Satisfactory clinical responses were produced by 2.4 million units. The patient who had a new infection could be cured with the initial treatment schedule, but a relapse required intensified treatment.

Bacteriologic cure was also produced in late-stage syphilis.

Long-term patient follow-up was carried out.

We devoted a great deal of study to each patient needing retreatment so that we were able to separate true relapses from new infections.

SOMMAIRE

En 1943 cinq lapins manifestant les premiers chancres scrotaux ont été traités avec succès par la pénicilline donnée par injection intraveineuse. Quatre hommes atteints de syphilis primaire séro-réactive, à réaction positive au microscope sur fond noir, se sont offerts pour l'expérience. Chaque homme a reçu 25 mille unités de pénicilline de sodium soluble dans l'eau par injection intramusculaire toutes les quatre heures pendant huit jours.

Il a été nécessaire de trouver les facteurs causatifs qui produisent les variations à la réaction thérapeutique de la syphilis humaine à la pénicilline. On s'est livré à une étude détaillée des individus pendant les premières quarante-huit heures du traitement pour enregistrer les manifestations cliniques et les réactions immédiates ou retardées à la thérapie. Les essais au microscope sur fond noir toutes les deux heures ont révélé une diminution rapide du nombre et de la motilité du T. pallidum avec disparition complète en moins de 20 heures. En 24 heures, la lésion primaire de chaque malade s'était transformée en un ulcère net. Un effet thérapeutique favorable chez l'homme a été indiqué par des résultats sérologiques et cliniques.

Les facteurs fondamentaux du dosage total, de la fréquence des injections et de la durée du traitement continu ont dû être évalués. On a obtenu des résultats cliniques satisfaisants avec 2.4 millions d'unités. Le malade atteint d'une nouvelle infection a pu être guéri en suivant le traitement initial, mais les rechutes ont nécessité un traitement intensifié.

On a aussi obtenu une guérison bactériologique dans les cas de syphilis avancée.

On a donné aux malades des soins post-hospitaliers pendant une période considérable.

Nous avons étudié avec soin chaque malade ayant besoin d'un nouveau traitement de sorte que nous avons pu distinguer entre les rechutes et les infections nouvelles.

RESUMEN

En 1943 cinco conejos con chancros primarios en la zona escrotal fueron tratados con éxito con penicilina administrada por via intravenosa. Cuatro hombres con reacción de campo oscuro positiva, y seroactivos en la sífilis primaria se ofrecieron voluntariamente para el experimento. A cada hombre le fueron administradas 25 mil unidades de penicilina sódica soluble en agua, por via muscular, cada cuatro horas durante ocho días.

Fue necesario encontrar los factores causativos que producen variaciones en las reacciones terapéuticas de la sífilis en humanos a la penicilina. Un estudio individual detallado fue realizado durante las primeras 48 horas de tratamiento para anotar las manifestaciones clínicas y las reacciones inmediatas ó retardadas a la terapia. Estudios de campo oscuro cada 2 horas demostraron una rápida reducción en el número e intensidad del Treponema Pallidum, con la desaparición completa en menos de 20 horas. Dentro de las 24 horas la lesión primaria de cada paciente cambió a una úlcera clara. Un efecto favorable terapéutico en el hombre fue demostrado por reacciones serológicas y clínicas.

Los factores básicos del total de la dosis, frecuencia de inyecciones y duración del tratamiento continuo tuvieron que ser evaluados. Las respuestas clínicas

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satisfactorias fueron producidas por 2.4 millones de unidades. El paciente que tenia una nueva infección podia ser curado con el plan inicial de tratamiento, pero una recaida requeria un tratamiento intensivo.

La cura bactereológica se produjo también en etapas más avanzadas de la sífilis.

Se llevó a cabo un continuo examen de los pacientes enfermos por largo tiempo.

Dedicamos la mayor parte al estudio de cada paciente que necesitaba volver a ser tratados de manera que pudimos separar los que sufrieron una nueva recaida con los que sufrieron nuevas infecciones.

A DRAMATIC ERA in the chemotherapy of syphilis began at the Venereal Disease Research Laboratory in March, 1943, when five rabbits with early scrotal chancres were given penicillin intravenously every four hours for four days. The disappearance of the *Treponema pallidum* from the lesions and the rapid healing of the ulcers were challenged with disbelief because the organisms had not been killed earlier in *in vitro* experiments. This animal experiment was repeated with similar results. Proof of the cure was confirmed later when the lymph nodes of the penicillin treated animals were proved to be non-infectious. These findings warranted the trial of penicillin in the treatment of early syphilis in man without further delay.

Early Experiments With Penicillin Treatment

During a two-week period beginning June 21, 1943, four young men with darkfield positive, seroreactive primary syphilis volunteered for an historical experiment (*1*, *2*). Each man was given intramuscularly 25 thousand units of water soluble, sodium penicillin every four hours for eight days. The size of the individual penicillin dosage was dictated by the fact that the ampoules contained 25 thousand units. The injection schedule was comparable to the animal studies. At my insistence, continuous therapy was administered long enough (at least one week) to eliminate the infecting organisms from the human body. It is important to recall that one week of intensive arsenical therapy could cure syphilis had already been demonstrated in extensive animal and human studies (*3*, *4*). However the fatality rate from drug toxicity rendered that arsenical regimen impractical.

With the experimental and clinical knowledge of arsenical therapy as a background, we had an adequate body of knowledge with which to begin the crucial experiment with the new nontoxic penicillin in small groups of animals and men.

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The following sequence of events occurred in the development of the new concept of antisyphilitic treatment. The causative factors that produced variations in the therapeutic response of human syphilis to penicillin were sought. A detailed study was made of each patient during the first 48 hours of treatment in order to record the clinical manifestations of the disease and any immediate or delayed reactions to therapy. Darkfield studies, made every two hours, revealed the rapid diminution in the number and motility of the *Treponema pallidum*, with complete disappearance of all forms in less than 20 hours. Within the first four hours of treatment the primary lesion of each patient developed acute redness, edema and oozing of serum. This changed in 24 hours to a rapidly healing, clean ulcer, despite repeated tissue irritations necessary for the darkfield studies. In one patient, a transient macular eruption appeared for less than six hours. In all patients the mild toxic manifestations of temperature elevation and malaise were present for less than 24 hours, and these were replaced by the exhilarative effects of a treatment that quickly removed the highly infectious, slightly toxic organisms of syphilis from the body. Quantitative serological studies by a battery of approved serological tests demonstrated conclusively each week the return of the elevated reagin titer to the negative phase. A favorable therapeutic effect in man was clearly indicated by these serological and clinical responses.

The disease's long unsatisfactory history of multifarious treatment schedules made it mandatory that the new penicillin treatment be evaluated carefully. It was imperative that the preliminary results in animal and in man be studied objectively; that proof of cure be established on a sound scientific basis; and that a simplified yet effective regimen be established quickly. Basic factors of adequate total dosage, frequency of injections and duration of continuous treatment, all had to be given thoughtful consideration. However, we had to keep in mind also that certain modifications might improve the therapeutic results, and that too many variations would result in a chaotic state of changing therapy that could never be evaluated properly.

The first study of 100 patients indicated that 1.2 million units divided into 60 equal doses, given every three hours, would cure many individuals with early syphilis (*5*). However, a few treatment failures indicated the need for increasing the dosage while maintaining the same time schedule. The second regimen of 2.4 million units produced more satisfactory clinical responses, and we were convinced that penicillin would cure early syphilis (*6*, *7*).

The comparability of response to drug therapy in rabbit and in man plus the relatively rapid procedures for determining a bacteriologic cure in the rabbit, were the significant facets of the entire research process. It was possible to evaluate in the animal a treatment modification before using it in clinical syphilis. Animal studies by this time had indicated that three days of therapy produced results as effective as the longer treatment schedules (*8*). Concurrent studies in early syphilis of man revealed that better results were obtained when the injection interval was reduced from four or three to two hours (*9*). This fact merely indicated that a higher serum level of aqueous penicillin could be maintained constantly and that a certain serum level was necessary to cure syphilis. The results of the two research studies were correlated. A new treatment schedule was developed in which patients were overtreated deliberately with 200,000 units of penicillin being given intramuscularly every two hours for three days (*10*, *11*). The results of this study established the fact that longer treatment periods were not needed.

The stage was being set for the ultimate goal of *Therapia Sterilisans Magna*. The perfect, or ideal, penicillin treatment schedule must cure all patients with early syphilis. Since the metabolic and excretory mechanisms of the human body vary with each individual, as well as with each drug, a practical treatment had to be developed which would cure a high percentage of patients with safety, simplicity and economy. The small minority requiring retreatment could be given specialized consideration as to type of drug, frequency and size of dosage and duration of therapy. There would be no need to overtreat the many in order to prevent the possibility of a few treatment failures. Our concern was to secure the maximum rate of cure with minimum quantities of a scarce and, at that time, very expensive drug.

Treatment Evaluations

At this stage today and in looking at other diseases, it is interesting and important to stress again the modalities of new and developing treatments. There are those who insist that the very best curative therapy must be given to each patient treated, regardless of cost or material demands which might limit extensive use of a scarce and expensive drug. One of our goals was to cure the greatest number with as little penicillin as was feasible even though not all patients would be cured, and to produce a practical schedule that could be used everywhere despite a limited supply of penicillin.

Early studies with aqueous penicillin had resulted in definite cases of sero-relapse, and a few typical instances of clinical relapse or neuro-relapse (*12*, *13*). From one viewpoint this was quite fortunate, since these situations gave us an opportunity to study each individual patient intensively in order to determine the cause of each treatment failure. It was most important to know, and to establish definitely, that the infecting organism was not resistant to penicillin, and that all strains of *Treponema pallidum* were susceptible to the lethal effects of penicillin. It was equally important to know whether or not a patient with relapsing syphilis could be cured with the administration of an adjusted schedule of penicillin therapy, varying with each patient (*14*). It was observed that a patient relapsed again and again, when he was retreated with the original or another inadequate dosage schedule, yet he was cured by a more intensive therapy. This factor was most important since the question of resistant strains was raised in every retreatment problem. The serological response following a relapse or relapses tended to take place more gradually and to resemble the pattern of very early latent syphilis.

Reinfection occurred early in the various series of penicillin treated patients and offered a unique opportunity to study the entire picture. Old concepts of relapse and reinfection based on prolonged heavy metal therapy had to be restudied, on a comparative as well as objective basis, to gain a true perspective of the new courses of clinical events rapidly taking place in penicillin treated patients. The new therapy could be completed in less than one week, with no residue of prophylactic medication remaining in the body. Reinfection with *Treponema pallidum* actually did occur within a few days after completion of treatment. Unusually favorable circumstances and very cooperative patients enabled us to make the necessary observations early in reinfection, and helped us to establish new criteria for clini-

cal responses. The patient who had a new infection could be cured with the initial treatment schedule. Cure depended more upon the physiology of the man than upon the strain of *Treponema pallidum*. In contrast, a relapse required intensified treatment.

Responses of early latent and late latent syphilis to penicillin treatment were more difficult to evaluate rapidly. Serological reactions were significant although they reverted slowly to negativity. New clinical manifestations or complications rarely occurred with the passage of years. The absence of new cardiovascular lesions, central nervous system complications, and other late stages of syphilis, all indicated that the patients with latent syphilis were being treated effectively with penicillin. The early evidence obtained from the rabbit of the curative effect in latent syphilis of doses even smaller than those needed for secondary syphilis has been abundantly confirmed. Eighteen years after the earliest human cases were treated there is no evidence of failure to produce bacteriologic cure in the late stages.

In early central nervous system diseases the response to adequate penicillin therapy was quite satisfactory clinically and serologically. The late manifestations responded more slowly. But again time has proved that penicillin is a very effective therapeutic agent in stopping the progress of the disease, although nothing has yet been found which will restore the seriously damaged nerve tissues.

Long-Term Patient Follow-Up

Our experience in a service hospital demonstrated in early and latent syphilis the tremendous potential for studies of long-term patient follow-up as it relates to clinical investigations. In this particular Public Health Service Hospital, all of the clinical and laboratory staff working with patients developed especially fine attitudes for orienting each patient to his individual responsibility and to the importance of his role in the experimental studies. Attitudes on the part of medical staff and patients who were merchant seamen and men from the other military services were responsible for the very successful follow-up. Furthermore, the ability of the staff to secure the type of assignments to hold service personnel or merchant seamen in the area for follow-up must be credited as a further important factor. Incidentally, the close cooperation between the staffs of the laboratory and of the hospital set the stage for the development of extensive research programs in the Public Health Service Hospitals.

In a personal way, I would like to give deserved credit and to acknowledge publicly the assistance and cooperation of the many patients in the earlier studies. They not only volunteered to play the crucial part of the "Experimental Animal in Human Syphilis", but continued to play their role throughout the follow-up studies for weeks, months and even years. While it was essential for the study, it was not easy for these seagoing men to come back repeatedly for short and sometimes prolonged observation periods. But the men returned even though no other follow-up procedure was used. Their devotion and loyalty to the experimental study were expressed hundreds of times and ways by their willingness to return again and again to the laboratory, always at their own expense, to sacrifice the limited personal free time from their seagoing occupation, and to submit to physical inconvenience of many different tests. When asked "Why do you continue to come back for these tests?," their general comment was "Doc, I am just as interested in knowing that I am cured as you are in proving the success of the new treatment."

New Penicillins and Treatments

One of the most significant contributions of the nationwide research effort was the development of new types of penicillins. Researchers in many laboratories were busy changing the effective water-soluble penicillin into an even more effective type that would be absorbed more evenly and more slowly over a period of several days. The water solutions were replaced by new media of suspension which materially assisted in prolonging the absorption process.

At this stage it was possible to visualize the development of the "magic bullet" long sought by clinicians the world over. The time-dose relationship had already been established for the freely soluble penicillins. Hence it was easy to modify the method of administration and to substitute the new compound in research studies. The elimination of the multiple, frequently injected penicillin doses, was welcomed by patients and physicians alike. Subsequent research studies demonstrated that early syphilis could be cured with a single injection; but for additional assurance a few extra injections were given by some researchers and clinical workers. From the point of view of patient

education and of securing cooperation for contact interviewing, it was found desirable to give several injections. This extra dosage increased somewhat the cure rate and cut down the risk of reinfection from the re-exposure to the infected partner who might not yet have been brought to treatment. The greatest value of a single or limited-injection schedule of treatment is, of course, the protection of the health of an unsuspecting public.

The first injection in any limited treatment series should contain enough penicillin to cure a large majority of patients, particularly in the treatment of the promiscuous, irresponsible and uncooperative patient occasionally seen in the clinic or physician's office. All patients should be given enough penicillin to cure syphilis whether or not they are regular in follow-up.

The slowly absorbed penicillins are most valuable, especially in the treatment of the latent stages of the disease and especially in syphilis of the nervous system, because it is possible to maintain higher serum levels longer, with a minimum number of injections.

Value of Intensive Studies

Early in our experiments and at various times when reports were made on the experimental studies, serious questions were raised about the small number of patients in each of our series and the validity of our statistical figures. We believed that large numbers of patients with early infectious syphilis were not necessary in each series, since an unfavorable trend could be observed early enough to institute the necessary treatment modification to correct treatment failures. Each patient needing retreatment was subjected to an intensive investigation so that we were able to separate true relapses from new infections. Relapses in early syphilis resulting from inadequate penicillin administration, appeared early (two to four months), thus differing from the traditional prolonged post-treatment intervals observed in intermittent or interrupted heavy-metal treatment. The few treatment failures, the single reinfection and matched ping-pong reinfections, produced valuable clues on true treatment failure and new infections in the previously treated patient. The cumulative retreatment rates calculated on all patients needing retreatment did not reflect the differences between relapse and reinfection and frequently implied an unjustified poor therapeutic response.

We learned much more from the intensive studies of the few patients needing retreatment than from the hundreds who had a normal pattern of successful therapy. We were fortunate, too, in working with the early stage of the disease which had so many truth revealing features spread throughout the human body.

Development of New Tests

The clinical research studies would have been seriously hampered if the reliable diagnostic and quantitative tests had not been available and used from the very beginning. The extensive use of multiple procedures made it possible to telescope into a few months what previously would have taken years or even decades to demonstrate. These tests revealed the presence and titer of the reactive substance in blood and spinal fluid. The quantitative tests often revealed the first evidence that a patient was reacting favorably to a successful treatment. More importantly, the same tests gave the first indication that a treatment failure was imminent so that the clinician was able to initiate an early study of the situation, find the causative factors, and begin proper remedial measures promptly.

The clinical and public health laboratory soon assumed a more important role in the diagnosis and follow-up of treated syphilis. The clinical research studies furnished a documented background of human syphilis so that the laboratory could proceed with the development, study and evaluation of the new cardiolipin antigens and the then nameless VDRL serological tests. The results of these techniques were not reported officially at first, but the VDRL tests were performed in parallel series with a battery of approved standardized diagnostic and quantitative tests. It soon became evident that the new testing procedures would eventually replace the older techniques in many laboratories. The new cardiolipin antigen was very sensitive and highly specific in the VDRL techniques. The new simplified procedures were easier to perform and had a very high degree of reproducibility. Once the clinical research studies had established the composite patterns of serological reactivity in penicillin treated syphilis, it became evident that the use of the VDRL diagnostic and quantitative tests would give all the serological information necessary in an established treatment schedule. These findings made significant economies in the use of laboratory time and materials without adversely affecting the sensitivity and specificity of the laboratory report or its use by

the physician. The quantitative report became a very valuable new asset in the study and diagnosis of disease and the response of syphilis to therapy.

Conclusion

The success story of penicillin therapy in syphilis had a formidable impact on the treatment and management of many other diseases. The effective treatment of acute gonorrhea, and the prevention of its acute and chronic complications in both sexes are well documented. More importantly, in the non-venereal disease field, penicillin became the forerunner of a whole series of antibiotic compounds which suddenly opened new vistas in the chemotherapy of many stubborn infectious diseases. In this second decade of progress, improved penicillin compounds, now available in disposable units, have made it possible to develop eradication programs for the other treponematoses.

The clinical and serological responses to treatment for all types of syphilis far exceeded the fondest hopes of the original investigators. During the first decade of therapy with all types of experimental therapeutic variations, proof of cure was confirmed throughout the nation by the almost total disappearance of early relapsing syphilis, serological failure, early and late central nervous system syphilis, cardiovascular syphilis, gummas, syphilis in pregnancy, and congenital syphilis. At the end of the present decade the teaching centers are finding difficulty in locating and presenting suitable cases for demonstration purposes to the new generation of physicians.

We cannot expect to have eliminated this scourge of man from a nation of 180 million people in just 20 years. However, so much progress has been made in fewer than 20 years, that countless public clinics, hospital treatment programs, rapid treatment centers, and private venereal clinics have disappeared from the American medical scene. The clinical physician now handles the disease in routine office practice, just as any other infectious disease. We still have patients with syphilis in all states, and small outbreaks will occur for years to come. This regrettable situation exists today because the discovery of a new and simple cure for syphilis was not accompanied by either the requisite sustained surge of professional effort in public health and preventive medicine or by adequate fiscal support necessary to utilize fully the new knowledge. Today the roles of the public health official, visiting nurse and contact investigator are more important than ever before. The fewer new cases of today are infinitely more difficult to find than the many of yesterday. These new islands of infection can and must be discovered so that this disease, under incessant surveillance, eventually will be eradicated from this nation, and perhaps, the world.

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Control of Syphilis as Influenced by the Epidemiology and Treatment of Gonorrhea

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ABSTRACT

Reported cases of syphilis have declined to about a thousand a year recently, of which 30 are primary and secondary cases. It is considered there has been no real increase of late latent cases in the immediate past.

In 1956 the treatment of gonorrhea patients and their contacts with benzathine penicillin 1.2 million units plus 600,000 units of penicillin with aluminum monostearate was begun, and adequate follow-up of female contacts has been provided. The penicillin with monostearate was in a separate injection.

It is believed this use of gonorrhea identification of the group incurring the greatest risk of syphilis, so as to include that group in an adequate syphilis treatment, is responsible for the maintenance of the local rates of primary and secondary syphilis at a low level during the period when the nation as a whole suffered a sharp increase in those rates.

SOMMAIRE

Le nombre de cas déclarés de syphilis a récemment décru jusqu'à un millier environ par an, parmi lesquels 30 sont des cas primitifs et secondaires. On estime qu'il n'y a pas eu d'augmentation réelle des cas latents tardifs dans ces derniers temps.

On a commencé en 1956 à traiter les blennoragiques et leurs contacts avec 1.2 millions d'unités de pénicilline benzathine, plus 600,000 d'unités de pénicilline au monostéarate d'aluminium, et on a suivi les contacts féminins comme il convenait. La pénicilline au monostéarate a été injectée séparément.

On attribue à cette méthode d'identification de la blennoragie dans le groupe qui court le plus grand risque de syphilis, afin d'englober ce groupe dans un traitement syphilitique efficace, le maintien du taux local de syphilis primitive et secondaire à un niveau peu élevé pendant la période où ce taux subissait une augmentation marquée dans l'ensemble du pays.

RESUMEN

Los casos de sífilis que se han notificado, han disminuido aproximadamente a menos de mil al año en los últimos tiempos, de los cuales 30 son casos primarios y secundarios. Se considera que no ha habido un mayor aumento de los casos latentes más avanzados en tiempos recientes.

En 1956 se comenzó el tratamiento a pacientes con gonorrea y a los que sufrieron contagio de ellos, con penicilina bentazina de 1.2 millones de unidades, más 600,000 de unidades de penicilina con aluminio monosterato, y se realizaron suficientes exámenes continuos de los contagios femeninos. La penicilina con monosterato fue suministrada en una jeringuilla aparte.

Se considera que gracias a este medio de identificar la gonorrea del grupo que demostraba tener el mayor riesgo de sífilis, para incluir ese grupo dentro del tratamiento de sífilis adecuado, se ha podido mantener una proporción local de casos primarios y secundarios de sífilis a un nivel bajo durante el período en que la nación en sí, sufrió un rápido aumento de estas proporciones.

THE MEMPHIS and Shelby County Health Department serves a combined population of 627,000, 36% of which is non-white. This Department has administered an active venereal disease control program since 1936.

Reported cases of syphilis (Figure 1) reached a high of 9,600 cases in 1942 at a time when practically all of the young adult male population was blood tested for syphilis incidental to the mobilization of this nation's resources for World War II. This number has declined to a thousand or less in recent years. During the middle 1940's seven to eight hundred cases of primary and secondary syphilis were being reported annually. This figure has declined to about 30 cases per year. For comparing Memphis with other cities having similar populations, data are taken from the V.D. Statistical Letter of February 1962 published by the U.S. Public Health Service. Table 1 lists all the cities named in this report for Regions III and IV which are located in the southeastern part of the country. The reported case rate for primary and secondary syphilis varies from 108 per 100,000 population per year to a low of 8, with Memphis being the city having this low figure. Since we have a large

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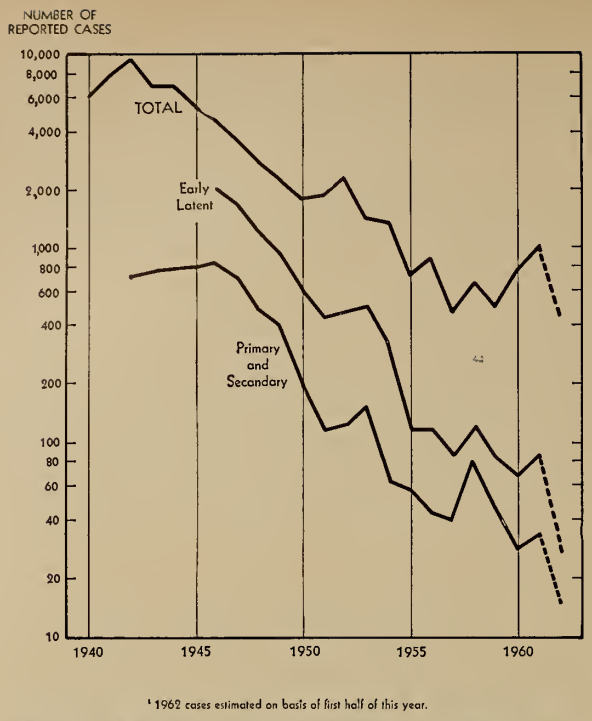

[1] 1962 cases estimated on basis of first half of this year.

Figure 1. Reported syphilis in Memphis and Shelby County, Tennessee, USA, number of cases by year, 1940–62 [1]

clinic with an adequate staff which conducts intensive epidemiologic investigations in relation to every case of primary, secondary and early latent syphilis discovered, we cannot accept the suggestion of some that a large number of undiscovered cases of primary and secondary syphilis is occurring in Memphis.

There has been no increase in the frequency of primary and secondary syphilis in this area during the past few years when a marked nationwide increase occurred.

There has been a considerable increase in the number of reported cases of late latent syphilis during 1960 and 1961. This increase is attributed to two factors, one of which is that an old file of reported syphilis cases was discarded a few years ago and the lack of this resource led to duplicate reporting of many older cases; and second, the intensity of the follow-up of positive serologic tests was increased considerably during the past few years particularly as it relates to weakly positive reactions. Many of these persons with persistent weakly positive reactions are classified and reported as late latent syphilis. It is considered that there was no real increase. Because of a suggestion that the treatment we employ for gonorrhea might be masking early syphilis which was later discovered and diagnosed late latent, we determined the mean age of patients reported to have late latent syphilis during 1956 through 1961. This mean age has risen significantly over that six-year period from 46 to 50 years of age. The mean age of gonorrhea patients in 1961 was 26, which is 24 years less than that for late latent syphilis cases. Benzathine penicillin treatment of gonorrhea was begun in our clinic only six and one-half years ago. Had the increased number of late latent syphilis patients been due to the masking of early syphilis by gonorrhea treatment, the mean age of late latent syphilis patients would have declined rather than risen.

Table 1. Primary and secondary syphilis: cases reported per 100,000 population per year, based on July, August, September 1961; including all cities in PHS Regions IV and V listed in V.D. Statistical Letter, February 1962

City	Cases per 100,000 population per year
Miami	108
Washington, D.C.	98
Jacksonville	69
Tampa	53
Charlotte	43
Baltimore	36
Mobile	35
Atlanta	31
Richmond	26
Louisville	25
Norfolk	24
Birmingham	13
Memphis	8

In 1949, the epidemiologic treatment with penicillin of sexual contacts of primary and secondary syphilis was instituted. In 1956 the treatment of gonorrhea with benzathine penicillin 1.2 million units plus 600,000 units of penicillin with aluminum monostearate in a separate injection was begun. This method of treatment was instituted by the late Dr. Carl E. Hookings (*1*), who was director of our venereal disease control program at that time. He hoped that this method of treatment would render gonorrhea patients immune to reinfection for a sufficiently long period that their contacts could be brought to treatment and cured. He also hoped that this treatment would cure recently acquired syphilis which was still in the incubation period. Subsequent experience suggests that both of Dr. Hookings' hopes have been realized to greater or less extent. A short time after this treatment was instituted for gonorrhea patients it was also introduced for female sexual contacts of males with gonorrhea. These procedures have been continued to the present time.

In November 1960 the U.S. Public Health Service announced that epidemiologic effort directed toward the follow-up of gonorrhea contacts was to be sharply curtailed, and that a

maximum effort was to be devoted to early cases of syphilis. This policy was justified on a national scale by the sharp rise in early syphilis and by the limited funds available for venereal disease control. This policy, however, did not seem as applicable in Memphis as in some other parts of the country. In cooperation with this policy, our follow-up of gonorrhea contacts was severely curtailed though not to the extent recommended. Within two months there was a sharp increase in the number of male patients with gonorrhea being seen in the clinic. A similar increase did not occur among female patients since ordinarily most females seen with gonorrhea are brought to clinical attention as the result of epidemiologic effort. This increased number of male patients in the clinic continued. After six months it was decided to assign a venereal disease investigator to gonorrhea contact investigation and resume adequate follow-up of female sexual contacts of male patients. Two months following the resumption of standard epidemiologic practice as related to gonorrhea the number of male cases seen in the clinic dropped to the range which had been usual for that season of the year for several years.

Some significance must be attached to the fact that Memphis, a southern city with a large nonwhite population, has enjoyed a decreasing frequency of primary and secondary syphilis during a period when most of the nation has suffered from a sharp rise. We believe that the treatment of gonorrhea patients with benzathine penicillin in addition to penicillin with aluminum monostearate has been a significant factor in this satisfactory experience. It is logical that this should be so. Syphilis occurs most frequently among the most promiscuous groups in the population. Since gonorrhea is several times as common as syphilis, most syphilis patients will have received medical attention previously on one or more occasions for gonorrhea. In some diseases great efforts are made involving expensive and difficult testing methods for the identification of persons who are at increased risk of developing that disease. In syphilis this information is provided for us without effort. Gonorrhea identifies the groups at greater risk of acquiring syphilis. This is information which those interested in controlling syphilis cannot afford to ignore. One simple way of using this information to promote the control of syphilis is to treat gonorrhea patients and contacts with a dose and type of penicillin which cures not only the gonorrhea but incubating syphilis as well.

I believe that this idea was conceived by Dr. Carl Hookings and first put into practice in our clinic. At any rate, he was a pioneer in its development and promotion. I feel that in developing and applying this concept, he performed a great service to the venereal disease control effort and that this contribution was responsible in large part for the fact that Memphis has been able to maintain its low rate of primary and secondary syphilis during a period when the nation as a whole suffered a sharp increase.

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Intraurethral Chancres

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ABSTRACT

Because of the increase in syphilis since 1956, attention is called again to the incidence of intraurethral chancres. Frequently the point of entrance of the spirochetes of pallidum and the site of development of a chancre is the fossa navicularis and balanic portion of the male urethra. The primary lesion of syphilis is painless and not always associated with a urethral discharge.

Clinically, the lesions have a decided, firm induration. The appearance of the urethral meatus is altered; the orifice can be dry and gaping, pouchy, or inflamed and edematous. The urethral lumen is usually narrowed and can partially alter the normal urinary stream. The average case will have a urethral discharge which is serosanguincous, seromucoid, or thin, watery and scant. The discharge is usually not profuse. The inguinal lymph nodes are involved: enlarged, indurated and not painful.

The diagnosis of intraurethral chancre is often missed because of lack of suspicion and failure to palpate the urethra. After suspicion, ventro-dorsal palpation of the glans penis is necessary. Steady pressure while palpating the glans will increase the serosanguincous discharge which may be used for dark-field examination. The diagnosis of intraurethral chancre can be obscured in the presence of other venereal or urological conditions of the glans and prepuce.

A male with a urethral discharge will seek medical aid more frequently than one with a non-painful penile ulcer.

SOMMAIRE

Devant l'extension de la syphilis depuis 1956, on appelle de nouveau l'attention sur les cas de chancres intra-uréthraux. Le point d'entrée des spirochètes du Pallidum et le lieu de formation d'un chancre sont sourent la fosse naviculaire et la partie balinique de l'urèthre de l'homme. La lésion syphilitique primitive est indolore et ne s'accompagne pas forcément d'écoulement uréthral.

Au point de vue clinique, les lésions présentent une induration ferme et nette. Le méat urinaire change d'aspect; l'orifice peut être sec et béant, sacciforme, ou oedémateux et enflammé. Le lumen de l'urèthre est généralement rétréci et peut modifier en partie le flux normal de l'urine. Dans la moyenne des cas, il y aura un écoulement uréthral sérosanguinolent, séromuqueux, ou peu épais, peu abondant et aqueux. L'écoulement n'est généralement pas considérable. Les ganglions lymphatiques inguinaux sont affectés: gonflement, induration, mais sans douleur.

Il arrive souvent qu'on manque le diagnostic du chancre intra-uréthral faute de soupçons et faute de palper l'urèthre. En cas de soupçon, il est nécessaire de faire une palpation ventro-dorsale du gland du pénis. Une pression ferme exercée pendant toute la palpation du gland augmentera l'écoulement sérosanguinolent qui pourra être employée pour l'examen à l'ultramicroscope. Le chancre intra-uréthral peut être dissimulé au diagnostic par la présence d'autres affections vénériennes ou urologiques du gland et du prépuce.

Les sujets masculins présentant un écoulement uréthral ont plus souvent recours au médecin que ceux qui ont un ulcère indolore du pénis.

RESUMEN

Debido al aumento de la sifilis desde 1956, de nuevo se ha llamado la atención á la incidencia del chancro intrauretral. Frecuentemente el punto de contagio de las espiroquetas pállida y el lugar de desarrollo del chancre es la fosa navicular y la uretra balanica. La lesión primaria de la sífilis se produce sin dolor y no siempre esta sociada al exudado uretral.

Clinicamente hablando, las lesiones tienen un endurecimiento firme y determinado. La apariencia del meato uretral es alterada; el orificio puede aparecer seco y abierto, en forma de bolsa, ó inflamado y edematoso. El lumen uretral casi siempre se extrecha y puede alterar parcialmente el conducto urinario normal. El caso común presentará un derrame uretral, que es serosanguíneo, seromucoso, ó claro acuaoso y escaso. El exudado muy pocas veces es profuso. Los ganglios linfáticos de la region inginal se complican: agrandándose, endurenciéndose aunque sin dolor.

El diagnóstico del chancro intrauretral muchas veces es errónco debido a la duda y a la omisión de palpar la uretra. Debido a esta duda, la palpación ventro-dorsal del glande del pene es necesaria. Una presión contínua mientras se palpa el glande del pene aumentara el exudado serosanguineo que puede ser usado en el examen microscopio de campo oscuro. El diagnóstico del chancro intrauretral puede ser dudoso en presencia de otras condiciones venéreas o urológicas del glande y propucio.

Un hombre con exudado uretral buscara la ayuda medica con mas frecuencia que uno con una ulcera del pene sin dolor.

AS THERE HAS been a steady increase in primary and secondary syphilis since 1956, attention should again be called to the incidence of intraurethral chancres.

Very frequently, the portal of entry of the spirochete of *pallidum* and the site of development of a chancre is the *fossa navicularis* and balanic portion of the male urethra. When the primary lesion of syphilis originates in the male urethra, it is painless and not always associated with an urethral discharge. This condition is analogous to the female with an intravaginal primary lesion. Patients with these lesions are unaware of having a serious, contagious disease until they develop other symptoms of syphilis, or are brought to treatment through contact investigation.

Clinical Characteristics

Clinically, the lesions are painless, with a decided, firm induration. Depending on the size and the amount of induration of the lesion, the appearance of the urethral meatus is altered; the orifice can be dry and gaping, pouchy or inflamed and edematous. The urethral lumen is usually narrowed and can partially alter the normal urinary stream. There is usually a urethral discharge which is serosanguineous, seromucoid or thin, watery and scant. The discharge even when associated with a dual gonorrheal infection, is usually not very profuse. The inguinal lymph nodes are involved; enlarged, indurated and not painful.

Diagnosis

The diagnosis of intraurethral chancre is often missed because of a lack of suspicion and failure to palpate the urethra. Since the incidence of infectious syphilis is increasing, any male complaining of an urethral discharge or examined as a contact of primary or secondary syphilis, and not having visible penile or rectal lesions, should be suspected of having a primary lesion of the balanic portion of the urethra. After suspicion is aroused, of prime importance is the necessity of ventro-dorsal palpation of the glans penis. If an endo-urethral lesion is present, a very firm, painless induration can be palpated, extending one or more centimeters in depth within the meatal orifice. The induration is often missed when the glans is palpated bilaterally. Steady pressure being applied while palpating the glans will cause an increase of serosanguineous discharge which may be used for darkfield examination. A suspicion of syphilis should again be aroused when indurated, non-painful inguinal lymph nodes are felt on palpation. Satellite buboes seldom occur when the urethral discharge is caused by the gonococcus, or due to nonspecific urethritis. The diagnosis of intraurethral chancre is established by darkfield examination. Intraurethral chancres may be obscured in the presence of other venereal or urological conditions of the glans and prepuce. When the prepuce is unretractable, due to inflammation or swelling, the condition can usually be alleviated in one or two days with cleansing soaks and sulfonamides. After the now-retractable prepuce reveals no external lesion, suspicion is again directed to the urethra, particularly if the serologic test for syphilis is reactive.

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A Clinical Study

Fourteen patients were found to have intraurethral chancres among 185 males treated for primary and secondary syphilis in the Dade County Department of Public Health Venereal Disease Clinic between July 1957 and July 1962. Clinically, each case presented a textbook picture of an endo-urethral primary lesion. Had these lesions been upon an epithelial surface, they would have been classed as a Hunterian type of primary chancre. Since all surface primary lesions are not similar, varying in size and induration, it can be assumed intraurethral lesions can also differ in these characteristics.

No definite pattern has been established for the occurrence of intraurethral chancres in the study of these 14 cases. The meatus was altered in each case; inflamed and edematous or dry and pouchy. On re-examination of the patients after treatment, the meatus appeared normal. Eight of the cases had a slight to moderate urethral discharge. VDRL slide tests were reactive, ranging in titers from 1:1 to 1:68. Thirteen cases were darkfield positive. Four cases had concurrent gonorrheal urethritis. Suspicion was aroused in three cases because they were referred to the clinic as sexual contacts in our epidemiological survey. One point for early diagnosis of intraurethral chancres can be established; that is, a male with a ure-

thral discharge will seek medical aid more frequently than one with a nonpainful penile ulcer. Twelve of the 14 cases were diagnosed in the primary stage; the other two did not seek aid until they had developed secondary syphilis.

Summary

In summary, attention is again directed to the frequency of intraurethral chancres, in that diagnosis is facilitated when there is a high index of suspicion and the glans penis is palpated ventro-dorsally for urethral induration.

Behavioral Science

Attitudes Toward and Public Images of Venereal Disease

CLAUDE SCOTT NICOL, M.D.

ABSTRACT

The change in our moral values has encouraged sexual promiscuity, thus causing an alarming increase in sexually transmitted diseases. The main factors in the increase of V.D. in England and Wales are of a socio-economic character. A recent survey showed that 50% of the new male cases of gonorrhea in 1960 were contracted by immigrants. An increased percentage of gonorrhea in those under the age of 25 was also noted.

An increasing proportion of early syphilis and of gonorrhea has been diagnosed in admitted male homosexuals.

Juvenile delinquency cannot be separated from illegitimacy and infection with venereal disease. Teachers, ministers, social workers, probation officers, doctors, and nurses who strive against these evils face a stupendous task. The higher wage earning capacity of young people creates a new problem. The parents of children who have risen to a class above them would not presume to advise or control them.

The attitude of men who had attended a V.D. clinic was that sexual intercourse is necessary for health and that prostitution is necessary to provide the outlet for the sex urge.

People in the street, questioned on a television program, registered vague attitudes towards the subject of V.D.

Very often the dire results of promiscuity influence the individual against these actions, particularly if he realizes that others have also suffered as a result of his or her mistakes.

SOMMAIRE

Le changement de nos valeurs morales a encouragé la promiscuité sexuelle, causant par là un accroîssement alarmant dans les maladies transmises par les rapports sexuels. Les principaux facteurs de cet accroîssement des maladies vénériennes en Angleterre et dans le Pays de Galles ont un caractère socio-économique. Une étude récente a montré que 50 pour cent des nouveaux cas de gonorrhée chez l'homme, en 1960, ont été contractés par des immigrants. Un pourcentage accru de gonorrhée parmi les sujets au-dessous de 25 ans a également été constaté.

Un nombre croîssant de syphilis précoces et de gonorrhées a été diagnostiqué chez des hommes reconnus homosexuels.

La délinquence juvénile ne peut être séparée de l'illégitimité ni de la propagation des maladies vénériennes. Des professeurs, des ministres, des assistants sociaux, des médecins, des infirmières qui luttent contre ces fleaux ont à faire face à une tache prodigieuse. La capacité des jeunes gens de gagner davantage en salaire a créer un nouveau problème. Les parents d'enfants ayant atteint un niveau social plus élevé que le leur ne se permettent pas de les conseiller ni de les contrôler.

L'opinion d'hommes ayant fréquenté un hôpital pour maladies vénériennes est que les rapports sexuels sont nécessaires à la santé et que la prostitution est, elle aussi, néccssaire pour procurer un exutoire à la poussée sexuelle.

Des gens, dans la rue, interrogés au cours d'un programme de télévision, déclarèrent ne pas avoir d'opinion bien précise au sujet des maladies vénériennes.

Très souvent, les terribles effets de la promiscuité influencent l'individu contre ces actes, particulièrement s'il réalise que d'autres ont souffert aussi par suite de ses errcurs.

RESUMEN

El cambio en nuestros valores morales ha incitado a la promiscuidad sexual, de ahí ha causado un aumento alarmante en el contagio de enfermedades transmitidas por el sexo. Los factores principales en el aumento de enfermedades venéreas en Inglaterra y Gales son de un caracter socio-económico. Una investigación reciente demostró que el 50% de los casos de gonorrea nuevos en el hombre en 1960 fueron contraidos por inmigrantes. Se observó también un aumento en el tanto por ciento de la gonorrea en las personas menores de 25 años.

Una proporción aumentada de sifilis incipiente y de gonorrea ha sido diagnosticada en hombres homosexuales comprobados.

La delincuencia juvenil no se puede separar de la ilegitimidad y del contagio de enfermedades venéreas. Los maestros, ministros y trabajadores sociales y funcionarios a cargo de la libertad vigilada en los presos, los médicos, enfermeras que luchan contra estos males tienen que afrontar una labor inmensa. La capacidad máxima de salarios de la gente joven crea un nuevo problema. Los padres de jovenes que se han elevado a una clase social superior a la de ellos no pueden presumir en aconsejarlos o controlarlos.

La actitud de hombres que han tenido que ingresar en una clinica de enfermedades venéreas era que el con-

tacto sexual era necesario para la salud y que la prostitución era necesaria para proporcionar un medio de escape a las necesidades sexuales.

La gente del pueblo quienes fueron entrevistadas en un programa de televisión, manifestaron una actitud vaga hacia el tema de enfermedades sexuales.

Muy a menudo los resultados horribles de la promiscuidad influyen al individuo en contra de estas acciones, particularmente si él se da cuenta que otros tambien han sufrido como resultado de sus errores.

MOST PHYSICIANS who are concerned with dealing with the problem of the venereal diseases would agree that the antibiotics and other chemotherapeutic agents now available enable them to cure the great majority of their patients. The problem with which we are faced today is a very different one, and not directly related to medicine at all. It is the problem of a change in our moral values which has encouraged sexual promiscuity, which in turn has caused an alarming increase in sexually transmitted diseases.

Influence of Science and Religion

To fully understand the moral codes and sexual behaviour of our various multiracial societies in the beginning of the second half of the 20th century, we must look back briefly to the very beginnings of the history of Western Civilisation.

This civilisation has been formed over the centuries from the varying effects of two very different and basic influences on the mind of man—*science* and *religion*. The history of science in the sense of definite knowledge as opposed to dogma really began between the 6th and the 4th centuries B.C. when the Greeks discovered mathematics; the great philosophers at the same time applied rational thought to the behaviour of man as an individual and in the society of the City State. Later the Romans contributed further advances in engineering and law giving. Religion in the form of Christianity was adopted by Constantine in the 4th Century A.D. Thus Christianity, with its origins of Eastern mysticism, became the official religion of the West. Science, however, did not survive the fall of the Roman Empire while Christianity triumphed and the heathen tribes from beyond the Rhine were converted. Then for 10 centuries men's minds were dominated by great theologians like St. Augustine and St. Thomas Aquinas. The Church of Rome was all powerful throughout the middle ages, struggle as kings might against it. Marriage was sanctified and chastity a shining virtue. But gradually the power of the Church waned through religious wars, a decline in the standards of the clergy and a gradual loss of belief by the common people which was started by the writings of Erasmus and culminated in Luther and the Reformation. The fall of Constantinople in 1453 sent a flood of refugees who reintroduced the old Greek texts into Italy and caused the rebirth of science and art which we term the Renaissance, typified by the achievements of such an individual as Leonardo da Vinci. The moral tone was set by the Decameron and the writings of Benvenuto Cellini. In the centuries that followed science and religion battled for domination in men's minds on fairly equal terms. Eras of strictness and laxity in moral codes alternated. In England the Reformation led on to the Puritan and Presbyterian movements. In 1660 the Restoration of Charles II brought its reaction of easy living and licentiousness, just as in the 19th century the strict moral codes of the Victorian era were a reaction to the debauchery of the Regency period. But the first half of the 20th century with the devastation and social upheavals of two World Wars has introduced a new problem. From the East a new philosophy or religion, call it what you like, has challenged the civilisation of the West. Faced with this new threat people here are beginning to realise that the advances of science and Christian thought are compatible and must work hand in hand to discover a solution to our problems.

Attitudes of Western Society

In 1962 we can really divide our community into sections of opinion in two ways, by age and by social status. Let us be clear in our mind that difference in age is far the more important, even within the same family.

Those of my age represent the middle generation, looking back to the generation of our parents, and forward to the generation of our children, today's teenagers.

Through the eyes of our parents we can picture the strength and the weakness of the family as a unit at the turn of the century, a century since Waterloo of almost uninterrupted prosperity and peace except for the terrible War between the States of the 1860's. But for the

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"have not's" of society there was a darker picture of poverty, ignorance, disease, and suffering, the price paid for the scientific advances of the Industrial Revolution. This was an era of firm religious belief, of the great liberal and reforming movements; while in the background knowledge was slowly advancing. Science now seemed to hold the solution of every problem; but these conclusions seem incompatible with the story of the creation in the Book of Genesis. Knowledge and free discussion of sexual functions were taboo, and the results of illicit sex, pregnancy and venereal disease were judged rather in the spirit of the Old Testament as a punishment and a retribution. Deviant behaviour led only to Reading Jail. Some of you will have read "The Ballad" by Oscar Wilde.

Those of us who were born at the beginning of this century represent the generation of disillusionment, in our lifetime we have survived two disastrous World Wars each fought and won "to end all wars" with catastrophic loss of life and suffering. Few families were left intact. Many of us had lost religious faith, lost faith in the great reforming movements which had degenerated in our time into political socialism. So we turned for our salvation to science, to the amazing advances which transformed our daily lives; we became the slaves of the new ideas of the great psychologists from Freud onwards. This profoundly altered our moral codes. Parents came to believe that discipline in the home thwarted the child's development, that sexual impulses should be given free reign to obtain vital experience before marriage, experience made safe by following the instructions of Marie Stopes. Yet divorces and broken marriages became commonplace and were accepted by society as inevitable.

And what of our children; this is the so-called "beat generation" born during or after the Second World War. But do not blame them too much—they have suffered all the disadvantages of having us as their parents. Many of these youngsters are separated from their families, both mentally and physically, and suffer from loneliness, which makes them particularly receptive to all forms of modern propaganda. Worst of all, already lacking religious instruction, science has now failed them too in spite of all the material advances it now offers; it has given them "the bomb." Gone is the security of mind, faith in the future, the ability to plan ahead. These modern Epicureans live for "kicks"; they must experience everything in life before it is too late, sex of course included. But there are signs of revolt against this nihilism, and a return to religious faith. However much we may disagree with the policy of nuclear disarmament, at least the "Ban the Bombers" have some misplaced sort of belief. Thus in panorama is our modern society of the West composed.

Now let us see why we may appear to be handicapped when we compare our position in relation to V.D. control to that in countries east of the Iron Curtain. It is by the very nature of our freedom of thought and action, but you must remember that public attitudes, or, as I should say, public opinion, about sex and the results of sexual promiscuity can in the final count be a decisive factor in our favour. I shall of course be talking mainly in the context of our experience in Great Britain, but I think this is reasonably representative of the West.

The Present Situation

Venereal Diseases

There has been a steady increase in the numbers of new cases of venereal diseases attending the clinics in England and Wales as reported annually by the Chief Medical Officer to the Ministry of Health. In the latest report (1961) (*1*) this increase has been most marked in gonorrhea, but there has also been a slight but significant increase in early infectious syphilis, not admittedly to be compared with the dramatic increases experienced recently in the United States. Cases of non-gonococcal infection have also increased. The total numbers attending the clinics for examination is above the level of the pre-World War II years, suggesting a general increase in numbers of those at risk. As already stated there is little evidence that this is due to a failure to cure these diseases. The partial resistance of some strains of gonococci is not progressively increasing (Medical Research Council Working Party, 1961) (*2*) and only occurs in 13% of cases. The main factors have been of a socio-economic character. A recent survey by the British Cooperative Clinical Group (1962) (*3*) showed that 50% of the new male cases of gonorrhea in 1960 were contracted by immigrants, half of these from the West Indies. As shown in a study of West Indians presented at the General Assembly of the International Union Against the Venereal Diseases and the Treponematoses in 1959 (Nicol *et al.*, 1960) (*4*) over 50% of the males attending a clinic in London had had sex contact with white women. Immigrants of all nationalities tend to be predominantly male; sometimes wives and families arrive later, but even so many immi-

grant males seek casual relationships with white women. The imponderables in the immigration problem are the difficulty of controlling immigration in spite of a recent Act of Parliament; and the uselessness of any proposed medical examination on entering the country, as most immigrants are infected after arrival and many others would have positive serological tests due to yaws. The British Cooperative Clinical Group (1962) also demonstrated an increased percentage of gonorrhea in those under the age of 25; the great majority of these were white. The figure for 1960 was 36.5% (6.4% teenagers) for males and 63.8% (26.3% teenagers) for females. These figures showed a marked increase since 1957. There was no evidence that the increase in the proportion of infected immigrant males and teenage females was directly connected. This evidence of increased promiscuity in teenagers was confirmed by an increase of 38% in the illegitimate births to mothers under 17 between 1956 and 1959. These children born out of wedlock, usually have to be brought up in Institutions or by foster-parents. For this very reason they are often maladjusted to life. If the child is of mixed blood the problem is even greater.

The Wolfenden report of 1957 (*5*) on prostitution and homosexuality had resulted in the Street Offences Act of 1959 (*6*) which imposed heavy fines for those women convicted of soliciting in the streets. On the other hand the opportunity to examine, diagnose and treat such women in the Prison Clinics has been lost. Those who promote prostitution were quick to employ new methods, such as soliciting from cars and upper windows. Advertisements with telephone numbers in shops and other applications of the Call Girl System included the compilation of a Ladies Directory. The latter, however, came to grief in the case of The Queen versus Shaw. Shaw was convicted of (1) conspiracy to corrupt public morals; (2) living on the earnings of prostitution; and (3) publishing an obscene article; his appeals to the Court of Criminal Appeal and to the House of Lords were both dismissed. The other problem dealt with in the Wolfenden report was homosexuality; it was recommended that it should be made legal for consenting adult males to practice homosexuality in private. The Government, however, has never implemented this proposal. There is some evidence that in spite of this there has been an increase in male homosexuals; this is certainly true in a number of V.D. Clinics where an increasing proportion of early syphilis (31.6% in two clinics in London in 1959) and of gonorrhea (13.4% in the same clinics in 1959) has been diagnosed in admitted male homosexuals (Nicol, 1960) (*7*). The danger in disease control is that these homosexuals are extremely promiscuous and often widely travelled. One homosexual with early syphilis admitted 11 recent contacts, three of whom were doctors.

There are great problems for the politicians who make the law, the Judiciary who apply the laws and the police who attempt to support law and order, both in relation to prostitution and to homosexuality. But the law has other duties to perform which may greatly influence sexual promiscuity, such as the control of the sale of alcohol (I need hardly ask Americans if prohibition is workable), censorship of films, plays, broadcasting and television, and the prevention of the publication of obscene literature. Unfortunately business interests are often in opposition to these controls; if profits are to be made, human ingenuity can always circumvent any legal problem. Once the general public has become conditioned to sex, once the ban has been lifted on a wide vocabulary of words which even some of us would hesitate to use in casual conversation, once it is permitted to deal with any sexual aberration or perversion, what censor can control those who see great profit in the exploitation of sex? When a stolid British jury decided that *Lady Chatterley's Lover* was not obscene literature, this sent a thrill through the hearts of D. H. Lawrence fans. But it also meant that youngsters in the family or at school could borrow the book and read passages, no doubt carefully thumbed and indexed giving graphic accounts of sexual intercourse. These young people will skip the great literary achievement of the rest of Lawrence's work. Much of popular music, dancing and twisting is frankly erotic and business interests confirm the selling point of sex by constantly using it as a theme in advertising, whether it be for X-films or for cigarettes or on commercial television. So young people are tempted through neglect, or boredom, to break the legal and moral codes which still survive. Juvenile delinquency cannot be separated from illegitimacy and infection with venereal diseases. Those who strive against these evils, ministers of religion, teachers, social workers, probation officers, doctors, nurses and many voluntary workers, face a stupendous task. Churches and Sunday schools are often sparsely attended, for official religion seems to have lost its hold on the family and on the individual. Many young clergymen have realised this, and there are encouraging

signs that they are willing and anxious to look for a more broadminded approach, particularly to young people, about sex and morals, and discuss these freely in such places as church youth centres. As a London vicar said recently, "The theological solution simply does not work . . . our teaching is not to be deductive and scholastic, but inductive and empirical. Our Foundation doctrine must be the Christian doctrine of Man."

Teachers in school are also faced with a difficult problem—many feel that they must take on the task, which the parent has so often neglected, of giving basic sex education, and at a later date explaining the dangers of promiscuous sexual intercourse. This is, of course, of value, but often also has the effect of widening the gap between parent and child. The teacher may be asked for advice on contraceptive techniques and premarital intercourse, but here instruction is more difficult as opinion varies. To quote a well known anthropologist writing in a pamphlet *Teenage Morals* with a foreword by the Minister of Education: "Why should we be so concerned if some young people between the ages of 13 and 20 engage in heterosexual intercourse without being married?".

Our welfare officers and social workers are now faced with a new problem, the higher wage earning capacity of young people. Their prosperity divides them socially from their parents; as clerks or secretaries they consider themselves in the lower middle class while their parents are often still manual workers. The parents thus regard their children with pride but would not presume to advise or control them. These youngsters have plenty of money to spend on clothes and drink and entertainment. This is, of course, the reason why big business is so interested in them. They can also afford to get out of the family home quickly and share a flat with a friend. Friends or "the gang" nowadays are more important than the family and in the "gang" it may be "square" to be a virgin. Even at school the gang influence is in evidence, as in the case quoted by a general practitioner at a medical meeting recently. Girls who had lost their virginity were entitled to wear a yellow golliwog on their gym tunics; thus fun was considered more important than games. But even so the teenager leaving school at 15 and earning, maybe, £8 (about $23) per week at 17, can marry at 19, whereas the youngster who continues with higher education in order to get a degree at, say 22, has to delay marriage. So premarital intercourse, often with fairly permanent liaisons, is common at the Universities. Even in high society the disappearance of the chaperone has made matters easy for the so-called deb's delight (you can hire him at Harrods, at a price). If it becomes necessary for a girl to disappear from the social round for a couple of months to procure an abortion, well that is just part of the routine.

Public Opinion

Since Gallup introduced the public opinion poll, it has seemed possible to answer any question concerning public attitudes. Our knowledge in relation to venereal disease at present is rather limited. A group discussion paper was presented by Dalzell-Ward *et al.* (1960) (*8*) at the 1959 I.U.V.D.T. meeting and it provided two interesting points about the attitude of men who had attended a V.D. clinic: Firstly, that sexual intercourse was necessary for health, and secondly, that prostitution was necessary to provide the outlet for the "natural" sex urge. They advocated organized brothels and considered that "a nice girl" would not accept a promiscuous relationship.

Another source of public opinion was a television programme "The Shadow of Ignorance" on the Venereal Disease problem, originally shown in March 1960 by Granada T.V. Network. People in the street were asked, "Do you think the general public knows enough about V.D.?" Answers such as "I haven't got the faintest idea—Oh, my goodness what a subject," or "I don't even know what V.D. is," did not suggest a great public awareness. Others answered, "No, not half enough." A woman said "It's only that they advertise in a few toilets." As one man put it rather picturesquely "It's not like having a cold and you say to someone, 'Well, I've got a cold, keep away from me'." Another man had learned about V.D. in the Army abroad. A woman thought there was some education in the schools, but a boy said "We were never taught it in school—just talking amongst ourselves." But no one seemed shocked or embarrassed by the questions. During the programme a number of patients from a V.D. clinic were questioned by a woman interviewer. In the first interview a prostitute made the interesting point that she always used contraceptives and went to the clinic for a check up, but that a "whore" (by which I presume she meant an amateur) does not. "She just sells herself for a drink or a meal or something like that." But in spite of her precautions and check up the prostitute had had V.D. on two occasions. In an interview with a male homosexual he said

he was "horrified" when he was told he had syphilis and contemplated suicide. He admitted that some youngsters who were homosexual might not realize that V.D. could be transmitted by homosexual intercourse. A boy admitted he contracted gonorrhea at 15; he did not know venereal diseases were caught through sex. He was asked whether sexual intercourse was common with teenagers. As he put it, "Oh yes, they hear about (it), they know it's not to stir your tea with. They want to experiment." He thought there was nothing wrong with it. "You just hear other people do it, say 19, 20 and upwards." What little he knew of sex was "what I learned on street corners; you get it from one of the big boys." A girl student of 19 who had gonorrhea told her mother. "She was absolutely horrified." Asked if her mother knew she was having sexual intercourse she replied, "Mother had it at the back of her mind for a long time, but she never approached me. I just don't think they (parents) want to know."

"I just wouldn't believe it could happen to me," said the deb's delight, who had taken a beautiful girl in a sports car from the dance back to his flat. Another youth interviewed got gonorrhea as a result of his first sex experience at his eighteenth birthday party. Asked what he felt when he realized he was infected, he said, "I was disappointed;" asked whether his family had given him any instruction, he said "No," and added, "You don't take any notice of what your family tell you, really when you're that age. But if your teacher tells you at school, you take notice of it." Finally a married man of 48 was interviewed. He had contracted gonorrhea as a result of an extramarital risk; he admitted he had been promiscuous since the age of 16. Asked about the woman who infected him, he replied, "She wasn't exactly important, but I had known her before—that was the last place I expected to get it. If it had been an ordinary pick up, I might have expected something, but being that it was more or less a friend, it seemed impossible." Asked if there were many men his age among his friends who were willing to take such a risk, he replied "I think the majority would, if they got the chance."

The Future

What is our future programme? We still have insufficient evidence of the extent of the sexual experience of young people nowadays. The Central Council for Health Education is at present organising such a survey by means of a three-year grant from the Nuffield Foundation. It is hoped that the factual information from this survey will be of great help to a project of the Committee of the British Medical Association on "The increase in venereal disease particularly amongst young people." This committee is composed of doctors, clergymen, teachers, probation and welfare officers, and other social workers. It intends to gather evidence from all sections of the community from archbishops to pop singers, in order to advocate a correct behaviour pattern for young people. My own personal view of the future outlook is that a change for the better will only occur when there is a final rapprochement between the Eastern and Western blocks so that people can again concentrate their minds to social and moral problems. The family will have to be restored as the main pillar of society. This means that we shall have to make arrangements to educate our children to parenthood. A parent education movement has in fact been established in one country, France, since 1929. A new approach by the Churches must be based on the New Testament spirit of understanding and the importance of thinking of other people, rather than the Old Testament idea of rules and punishment. I think we must all preach the sanctity of marriage and encourage the idea of the engagement of two young people as a real contract, not just as a notice in the morning papers. Increased prosperity resulting in earlier marriage could make premarital intercourse die a natural death, so that a honeymoon would again be an experience to look forward to.

But what about promiscuity, and its results, pregnancy and venereal diseases? Are we taking the right road by applying protective and preventive methods, pills, contraceptives, and prophylaxis in its various forms, or should we accept that God has provided these disincentives to promiscuity? Should we, as mere mortals, remove them? As doctors it is clearly our duty to help those in trouble and restore them to health, but very often it is these very dire results of promiscuity which persuade, or if you like convert, the individual, particularly if it is realised that others have also suffered as a result of his or her mistakes.

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Role of Behavioral Science in Venereal Disease Programs: Retrospect and Prospect

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ABSTRACT

Improved methods of treatment have resulted in a very marked drop in some of the more severe after effects of syphilitic infection, such as general paresis.

In discussing V.D. and social pathology, note is made of the development of methods for delineating the extent to which a disease is related to a larger underlying personality or pattern.

Group differences in modal character structure are believed to account for group differences in the frequency with which syphilitic infection results in paresis. Since the same factors which might produce a predisposition to paresis might also result in other psychoses characterized by a similar type of regression, there is a possibility that some other psychosis would develop before the syphilitic germ had a chance to produce brain damage.

The ecological method has been applied to studies of incidence rates for paresis and the relation of these rates to the rates of V.D. infection. The nativity and racial differences in paresis rates appear to follow a similar pattern to that for the alcoholic psychoses.

Fear of contracting venereal disease, though based on realistic considerations, may become so exaggerated that there is little relationship between the danger and the fear.

In keeping with the concept that a patient may unconsciously select a disease because it serves some function in his personality, psychoanalysis has suggested that some persons who contract V.D. have done so because they unconsciously wished to do so.

Adolescence, prostitution, and individual differences are aspects of behavioral science which are relevant to V.D. programs. It is believed that prevention and control programs will be more effective to the extent that they employ the pertinent concepts, techniques, and findings of the behavioral sciences.

SOMMAIRE

Les progrès des méthodes de traitement ont amené une diminution très nette de certaines des séquelles les plus graves de l'infection syphilitique, telles que la paralysie générale.

La discussion des maladies vénériennes dans la pathologie sociale mentionne de nouveaux moyens de déterminer la mesure dans laquelle une maladie s'encadre dans un fond personnel ou typique.

On croit que les différences groupales de modes de structure caractérielle expliquent les différences groupales de fréquence de la paralysie consécutive à l'infection syphilitique. Comme les facteurs susceptibles de créer une prédisposition à la paralysie amènent peut-être aussi d'autres psychoses caractérisées par un type analogue de régression, il se peut qu'une autre psychose se développe avant que le microbe de la syphilis ait pu causer une lésion cérébrale.

On a appliqué la méthode écologique à l'étude des taux de fréquence de la paralysie et de leur rapport avec ceux des infections vénériennes. Les différences de lieu d'origine et de race des taux de paralysie semblent suivre un modèle analogue à celui des psychoses alcooliques.

La crainte de contracter une maladie vénériennes, bien que basée sur des considérations réalistes, peut devenir si exagérée qu'il subsiste peu de rapport entre crainte et danger.

Partant de la théorie qu'un malade choisit peut-être inconsciemment une maladie qui répond à certain besoin de sa personnalité, la psychanalyse a émis l'hypothèse que certaines personnes contractaient une maladie vénérienne parce qu'elles en avaient le désir inconscient.

L'adolescence, la prostitution et les différences entre individus sont autant d'aspects de la science du comportement relevant du domaine des programmes antivénériens. On croit que l'efficacité des programmes de prévention et d'arrêt augmentera dans la mesure où ils feront appel aux théories, aux techniques et aux découvertes appropriées des sciences du comportement.

RESUMEN

La mejora en los métodos de tratamiento de infecciones sifilíticas, ha contribuido a que disminuyan grandemente los efectos posteriores a la enfermedad, tales como una paresia general.

Al estudiarse las enfermedades venéreas y la patología social, se debe hacer hincapié en el incremento de los métodos para establecer cuán relacionada está una determinada enfermedad con normas ó características de la personalidad.

Se cree que las disimilitudes de grupo en las conformaciones de carácter modal, son responsables por las disimilitudes de grupo, con la frecuencia con que el contagio sifilítico degenera en paresia. Ya que los mismos factores que podrían causar cierta predisposición hacia la paresia podrían también traer como resultado otros desórdenes mentales caracterizados por un tipo similar de empeoramiento, existe la posibilidad de que otros desórdenes mentales aumenten, antes de que el germen sifilítico pueda haber dañado el cerebro.

El método ecológico ha sido aplicado a estudios de promedios de incidencia de la paresia, y la relación de estos promedios a los de contagios de enfermedades

venéreas. Las diferenecias de nacimiento y de raza en los promedios de paresia, parecen seguir una norma similar a la de los desórdenes mentales causados por el alcoholismo.

El miedo de contraer una enfermedad venérea, aunque basado en consideraciones realísticas, puede ser tan exagerado, que la relación entre el peligro y el miedo, es pequeña.

Siguiendo el concepto de que un paciente puede escoger inconcientemente una enfermedad porque ésta ayuda a su personalidad, la psicoanálisis da a entender que algunas personas han contraido enfermedades venércas porque inconcientemente así lo deseaban.

La adolescencia, la prostitución y las disimilitudes individuales son aspectos de la ciencia del comportamiento que tienen relación con los programas para tratar enfermedades venéreas. Se cree que los programas de prevención y control serán más eficaces, cuanto más uso se haga de los conceptos, técnicas, y descubrimientos, de la ciencia del comportamiento.

THE BEHAVIORAL sciences have been both extravagantly praised and attacked in terms of their ability to contribute to the amelioration of human problems. A retrospective look at some behavioral science studies of venereal disease may help to clarify the prospect of their future contributions to the study of venereal disease.

Venereal disease is of interest to the behavioral sciences for a variety of reasons. Syphilis and gonorrhea are respectively the third and fourth most frequently found infectious diseases in the United States, and their frequency in other countries is also very high (*1*, *2*). In recent years, improved methods of treatment have resulted in a very marked drop in the prevalence of some of the more severe after effects of syphilitic infections, such as general paresis. At least one of the previously frequent consequences of syphilis—the number of infant deaths from congenital syphilis—has become extremely rare in the United States (*3*). Nevertheless, it is important to remember that syphilis was long one of the major causes of death and of diseases of the nervous system. Although recent methods of treatment have markedly reduced the number of instances in which syphilitic infection is allowed to develop to a state where it can cause such severe damage, the fact is that even now the number of cases of neurosyphilis and the number of cases of blindness caused by congenital gonorrheal infection is still very substantial (*4*).

Venereal Disease and Social Pathology

An area within behavioral science that has contributed substantially to our knowledge of various diseases is the development of methods for delineating the extent to which a disease is related to a larger underlying personality or other pattern. Thus, a major contribution of the studies on the authoritarian personality was their demonstration that prejudice is often a manifestation of underlying character structure rather than a discreet symptom. In the study of a patient with venereal disease, the behavioral scientist is interested in whether the patient has other symptoms. He is interested in whether the patient is engaging in social pathology as a method of responding to his environment or to personality pressures.

According to the United States Public Health Service, the extent of venereal disease among young persons "varies directly with other problems of maladjustment, with lack of financial stability, and varies inversely with educational status" (*5*). To illustrate this point, the USPHS report presents correlation coefficients indicating high positive correlations by states between venereal disease and a delinquency index and between venereal disease and illegitimacy, substantial positive correlations between venereal disease and the number of fetal deaths, and between venereal disease and low income. A moderately high negative correlation between venereal disease rates and school expenditure per pupil is also reported. Similarly, a perfect rank-order correlation has been reported between a juvenile delinquency index and the reported incidence of infectious syphilis in the five boroughs of New York City for 1957.

It should, of course, be remembered that these correlations are based on *ecological* measures, and do not directly give any information about the concomitance of venereal disease and the correlated variables in specific persons. Thus, per pupil expenditure on education is clearly an abstraction which does not differentiate among the individual pupils within a state.

From the standpoint of behavioral science, a positive correlation between delinquency and venereal disease is open to a variety of interpretations. According to one interpretation, venereal disease rates directly reflect delinquent behavior of the persons contracting the disease. This view attributes venereal disease to indiscriminate promiscuity and to a domination by the pleasure principle which leads to the

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neglect of precautions which would somewhat reduce the gratification in intercourse, but would also reduce the risk of contracting the disease. The correlation between delinquency and venereal disease would be further explained in terms of the assumption that delinquency is correlated with a low capacity for delay of gratification.

The second explanation emphasizes the conditions which lead to high delinquency rates, such as poor housing, overcrowding, and low per capita expenditures on education, on the assumption that the same conditions also tend to favor a high rate of venereal disease.

While each of these explanations has some plausibility, they must both be viewed cautiously. It seems reasonable enough to assume that inability to postpone gratification increases the risk of venereal disease, and although there is clearly a relationship between impulsivity and certain types of delinquency, it by no means follows that all delinquents are impulsive or that all impulsive individuals are delinquents. There is also some evidence that in some cases the contracting of venereal disease may be more related to self-punishment motives rather than to the pure search for pleasure.

While the substantial positive correlation between venereal disease and delinquency indices is certainly of interest, an adequate analysis of this relationship would also take into account the presence of some rather striking deviations from the overall pattern. Thus, the delinquency rate for New Jersey is approximately the same as that for Maine; the New Jersey venereal disease rate is more than five times as high as is the corresponding rate for Maine; and the New Jersey venereal disease rate is more than four times as high as is the venereal disease rate for Wyoming, which has a delinquency rate 36 times as high as that for New Jersey. A detailed analysis of some of the factors which might account for such discrepancies is, of course, outside the scope of this paper, but the examples cited are sufficient to indicate some of the dangers of an oversimplified interpretation of ecological findings. These examples also suggest that precisely those cases which deviate from an overall pattern shown by a correlation provide a fruitful starting point for further inquiry.

According to a well-known formulation by Krech and Crutchfield, the existence of negative stereotypes concerning a group may itself contribute to the behavior patterns which result in an apparent validation of the stereotype (*6*). This is analogous to Merton's concept of the "self-fulfilling prophecy." Some of the findings reported by Stouffer *et al.* at about the same time provide an illustration of this process (*7*).

Surveys conducted by the Research and Information Branch of the Army, as well as statistical data collected by the Surgeon General's Office, indicated a considerably higher rate among the Negro as compared with White soldiers in the Italian theater of operations. The data suggested a higher frequency of intercourse among the Negro than among the White soldiers. This could itself account for the much higher Negro venereal disease rates, since the survey results also indicate that the Negro soldiers took, on the average, more precautionary measures with respect to venereal disease than did the Whites.

According to Stouffer, the higher frequency of venereal disease among Negroes in the Italian theater is in part explainable in terms of the differences in the types of sexual partners available in Italy to the Negro and to the White soldiers. Statements by the Negro soldiers indicate that, because of stereotypes which had been transplanted to the Italian population, soldiers were quite limited in their access to any but the most promiscuous Italian women, and for this reason were more likely than were the White soldiers to contract the disease. Even allowing for the possibility that such statements by Negro soldiers may have represented rationalizations, the assumption that such circular causation did in fact play a role in the higher venereal disease incidence rate among Negro soldiers remains highly plausible.

Modal Character

The fields of social psychiatry and cultural anthropology, in their concern with modal or national character, may clarify a viewpoint first formulated by Hollos and Ferenczi, and subsequently elaborated by Kenyon *et al.* that general paresis is not a simple outcome of organic damage, but is a regressive psychosis which results more from faulty psychic development of the patient than from specific organic lesions (*8*, *9*, *10*). To the extent that this view is correct, group differences in modal character structure may very well account for group differences in the frequency with which syphilitic infection results in paresis. A tendency towards the type of regression involved in paresis, if confirmed, would seem to favor the occurrence of paresis in a group. Since, however, the very same factors which might produce a predisposition to

paresis might also result in other psychoses characterized by a similar type of regression, there is the possibility that some other psychosis would develop before the syphilis germ had a chance to produce brain damage.

This important area—the extent to which specific group differences may predispose to paresis as a result of syphilis—can be illuminated by the kind of cross-national data that this World Forum is seeking to encourage.

Ecological Factors

Ecological factors are of continual concern to the behavioral scientist interested in venereal disease.

Brody has reported some findings which indicated that in a sample of soldiers with venereal disease, the frequency of a past history of arrests was significantly greater than in a control sample of soldiers hospitalized for non-venereal diseases (*11*). To be sure, in view of the available data concerning selective factors in arrests, the fact that an individual has no history of arrests cannot be taken as sufficient indication of absence of anti-social conduct, but there is no particular reason to assume that this factor of underestimation operated to any greater extent in the case of the venereal disease than in the non-venereal disease groups (*12*).

The ecological method has also been applied to the studies of incidence rates for paresis and the relation of these rates to the rates of V.D. infection. Faris and Dunham analyzed the data on admissions to state hospitals of persons from Chicago with a diagnosis of general paresis (*13*). They reported a wide range of variation among the areas of Chicago, with a rate of as much as 628 per 100,000 in a "hobohemia" community. The geographical distribution of paresis in Chicago was characterized by high rates at the center of the city and a decline in these rates in every direction with few exceptions as one travels towards the periphery. Using data on venereal disease rates and on prostitution, the rates of admission for paresis were found to be highly and positively correlated with both. The correlation between the rates of admissions for paresis and venereal disease was 0.87; between admissions for paresis and prostitution was 0.72. Ethnic factors produce some exceptions to the overall ecological pattern. There were apparently very few Jewish paretics. The nativity and racial differences in paresis rates appear to follow a pattern similar to that for the alcoholic psychoses.

One finding of Faris and Dunham pertained to the relationship between nativity and the rate of admission for paresis. There was a negative correlation of -0.17 between rates for general paresis and the percentage of foreign-born persons in an area, perhaps because among the foreign-born "strong family ties and primary group relationships apparently protect their members from coming in contact with sexual vice."

A relevant question concerns the effects of population movements or changes in the composition of the population within the geographical units under consideration. In considering ecological correlations with the incidence of V.D. or of infectious syphilis, the time lag between the infection and the onset of the disease is a matter of weeks. In the case of paresis, the time lag between the initial infection and the onset of the mental symptoms is a matter of 10 to 15 years. A time interval of this length is obviously sufficient to bring about important population changes.

However, according to the well-known findings of Shaw and McKay, the delinquency and crime rates in many of the areas of Chicago remain remarkably constant (for fairly long periods) in spite of substantial turnover and ethnic changes in the populations of these areas (*14*). It is quite likely that such constancy is what made it possible for Faris and Dunham to obtain meaningful ecological data relating paresis to venereal disease and prostitution. Their analysis might have been less successful if they had chosen some other city.

Faris and Dunham's study deals, of course, with a period prior to the advent of penicillin treatment. The availability of this treatment since 1943 may very well have resulted in an alteration of the relationships between the rates of admission for paresis and other ecological indices. Military service in World War II on the part of many American males of all social classes and the fact that they were exposed to venereal disease educational campaigns is in itself a factor that may have brought about major changes in the relationship between paresis and ecological indices.

Although there is unquestionable value in research which deals with the relationship between socio-economic status and venereal disease, it would be an error to assume that such a relationship in a specific locality for a specific time can be assumed to hold for other periods or locations. Syphilis provides a concrete example of a form of social pathology in which this form of generalization would lead to inferences which might be erroneous.

No exact data are, of course, available concerning the relative incidence of syphilis in the upper and lower classes in 15th and 16th Century Europe. However, the available evidence clearly indicates that many members of the upper classes and even some of the royal figures of the period had syphilis and the living conditions of both the rich and the poor at the time were such as to make them easy targets for the syphilitic germ.

In all probability, it was the improvement in hygienic conditions at the beginning of the modern period that first led to the development of a correlation between syphilis and class status. Paradoxically, there is reason to believe that further improvements of hygienic conditions and the spread to the lower classes of improvements previously available only to the upper classes would ultimately tend to reduce whatever correlation may still exist between syphilis and socio-economic status. Of course, in addition to general improvement in hygienic conditions, the picture is further complicated by the spread of knowledge concerning techniques of prevention of venereal disease (*15*).

Although precise statistics on this point are not available, it is the opinion of some investigators, like Deschin, that venereal disease is no longer a specifically lower-class phenomenon, and the case materials cited by Deschin certainly give qualitative support to this proposition (*16*). It should be remembered in this connection that while a tendency towards cover-up is very possibly a source of error in the data, such a source of error is usually assumed to be more strongly operative in the upper than in the lower classes.

Another problem in considering the relationship between paresis rates and ecological indices stems from the possible role of cultural factors in predisposition to paresis, assuming that a syphilitic infection of the nervous system is present. It was formerly believed (e.g., by Kraepelin) that paresis does not occur among primitive tribes. More recent evidence (e.g., Carothers) indicates that paresis does occur among some of the relatively primitive tribes of Africa but not among other tribes (*17*).

Psychoanalytic Contributions

Another dimension is provided by psychoanalytic studies of phenomena related to venereal disease. The first such study by Alfred Adler was published over a half century ago (*18*). The term "syphilophobia" has subsequently been used by psychoanalytic authors to refer to exaggerated avoidance reactions based on a fear of contracting venereal disease. Frend himself dealt with a closely related phenomenon a case of agoraphobia in a young man who had unconscious fear that in the street he would be tempted by prostitutes, and that as a punishment for yielding to the temptation he would acquire syphilis (*19*). A number of other psychoanalysts have reported on syphilophobia (*20*, *21*, *22*).

Like many other phobic manifestations, fear of contracting venereal disease has a basis in realistic considerations. Such a fear may, however, become exaggerated to an extent where there is little relationship between the actual danger and the fear.

Venereal diseases are, of course, not the only diseases which become the object of phobic fears of infection through contact. The cleanliness rituals of compulsion neurosis are sometimes rationalized as measures necessary for the avoidance of infection. But among the various phobic and compulsive manifestations focussed on avoidance of infections, syphilophobia (a term which is here used to apply not only to the phobic fear of syphilis but, more generally, to the phobic fear of venereal infection) can be differentiated from the other phobic manifestations because the avoidance patterns refer primarily to sexual contact. The feared consequences are also linked more or less directly to the sexual apparatus. However, this distinction between syphilophobic and other phobic manifestations refers primarily to the manifest rather than the latent content. Any given manifestation, such as fear of contagion or avoidance of contact with objects which are thought of as being unclean, may be overdetermined on many levels and physical contact with objects often appears to serve as a symbolic representation of sexual contact (*23*). Thus, when the latent determinants are taken into account, the distinction between syphilophobic and other phobic fears of infection or compulsive cleanliness rituals may not be very sharp.

Syphilophobia can be distinguished from fears connected with the belief that one has already become infected, especially if such a belief is connected with the fear of infecting others through contact. A concern about the possibility of having been infected and about the danger to others in the event of such infection can, of course, have a realistic basis in persons who have been exposed to venereal disease. When such fear has a realistic basis and is not strongly overdetermined by other factors, the problem may be resolved by a visit to a physician or venereal disease clinic for diagnosis and,

if necessary, for treatment. However, when the fear has no obvious realistic basis, and especially if it does not lead to an attempt to obtain a diagnosis, the chances are that the deeper determinants are primary.

In some cases, e.g., in the case of the communities studied by Carlson, the fact that a visit to a clinic is likely to attract attention creates, of course, a possible deterrent to seeking diagnosis (*24*). It should also be noted that some degree of resistance to seeking diagnosis, either for venereal disease or for other diseases, is understandable in terms of an anxiety reaction which does not necessarily represent a grossly pathological manifestation. (As Carlson's findings indicate, some delay between the initial appearance of visible skin manifestations and the seeking of the diagnosis is not at all unusual, even in those cases where the connection between these visible manifestations and venereal disease is suspected from the start.) However, a persistent belief that one is infected with venereal disease combined either with a persistent refusal to seek medical diagnosis, or to accept medical findings which point to the absence of the disease can usually be taken as an indication that such a belief has little to do with reality.

Except in cases where it is realistically based, the belief that one has been infected and the fear of infecting others typically reflects a deeper form of regression than does a more exaggerated avoidance of infection. This deeper regression seems to involve schizophrenic features—preoccupation with sensations from inside the body and phantasies of disintegration of body organs through the destructive action of microscopic beings—which are not necessarily present in the phobic reaction.

The special significance of syphilophobia (and the related manifestations just mentioned) from the standpoint of psychoanalytic theory derives in part from the close connection between venereal diseases and sexuality. Pearson states that patients who are diagnosed as having venereal disease tend to view the disease as a "castration," and some of them attempt to prove their potency through intercourse so as to assure themselves that the infection has not injured their virility (*25*). Pearson mentions in this connection a popular superstition to the effect that virility lost through venereal disease would be restored through intercourse with a young virgin.

What is of primary relevance here is not the actual existence of connection between sexuality and venereal disease, but rather popular awareness of a connection—an awareness which does not necessarily have a one-to-one correspondence to reality. To the extent that venereal disease is seen as a consequence of sexual activity, it lends itself to being perceived as a punishment for sexual transgression, and to the extent that the sex organs are visibly affected, this perceived punishment lends itself to being interpreted as involving activity or potential loss of sexual power.

The doctrine that venereal disease is a form of divine punishment for sin was (in fact) held quite literally by some theologians, such as Cotton Mather (*26*). But even in the case of persons who would consciously reject such a doctrine, a connection between the idea of sexual transgression and retribution in the form of a disease of the sex organs might very well appeal to the more primitive layers of mental organizations.

The extent to which venereal disease is perceived in moralistic terms appears to be a function of cultural factors. The studies by Herzog and Carlson illustrate clearly the role of sociocultural background in determining the attitudes towards venereal disease sufferers and towards the possibility of having venereal disease (*24*, *27*).

Venereal Disease as an Unconsciously Sought Disease

Psychoanalysis has suggested that some persons who contract venereal disease have done so because they unconsciously wished to do so. This would be in keeping with the concept, gaining acceptance in some circles, that a patient may unconsciously select a disease because it serves some function in his personality economy.

Over a quarter century ago, Karl Menninger cited some of his own data and data provided by several other psychoanalysts in support of the hypothesis that susceptibility to venereal infection and the course of the disease after an infection has taken place are to a considerable extent determined by unconscious psychological factors (*28*). In two of the cases he mentions, gonorrhea was apparently contracted by sexual contact with women who themselves had negative results on a serological test. This suggests that, although gonorrhea germs must presumably have been present in the women's sex organs, the number of such germs must have been too small to permit detection by ordinary testing techniques. In both cases, the psychological picture involved guilt feelings in

connection with sex, rendering plausible the assumption that the venereal disease served an unconscious need for punishment. Other factors, such as an unconscious feminine identification, have also, according to Menninger, played a role in some cases in the maintenance of gonorrheal discharge, with the discharge being equated with menstrual discharge.

Another aspect of unconscious motivation in relation to venereal disease is briefly dealt with by Glover who postulates the operation of unconscious wishes on the part of the prostitute to inflict venereal disease on her client and of corresponding wishes on the part of the client to inflict venereal disease on the prostitute as well as of masochistic tendencies on the part of them both (*29*).

Some Other Areas of Behavioral Science Application

Many other aspects of behavioral science are relevant to venereal disease programs. Among such areas would be those of adolescence, prostitution and individual differences. These few areas are representative of a great many others that have developed pertinent data.

Adolescents are the targets of many venereal disease educational and prevention programs. Fortunately, the last decade has seen the development of a great deal of behavioral science knowledge about adolescence that can help us to develop a better understanding of the kinds of efforts in the venereal disease area that are most likely to be successful. Deschin's recent study gave a vivid picture of the social backgrounds of young people who had come to social hygiene clinics (*16*). Coleman has suggested the power of the adolescent peer group in resisting the influence of school norms (*30*). Another recent study has suggested that the enormous and almost universal interest of teenagers in the irregular tempo of rock and roll music connotes the teener's impatient desire to break away from adult social norms (*31*). The same report noted that the only successful satire magazine in the United States, which questions adult norms, is especially popular with middle class teenagers. Probably because of its emotional loading among teenagers, the only subject *not* satirized by this magazine is sex.

Reports of this kind suggest that the teenager of today, not only in the United States but in many other countries, is a different kind of person from the teenager of previous decades and that venereal disease programs directed to young people must take account of this difference. The relationship between the teenager and his parents has become the focus of much study and has also pointed up some of the directions that successful venereal disease control and prevention programs might pursue.

The relationship of the prostitute to the transmission of venereal disease is also being freshly assessed in the light of the several behavioral science studies not only of the prostitute but of her customer (*32*, *33*, *34*).

Our acceptance of such a concept as that of individual differences makes it all the more curious that the concept of individual differences in psychological response to venereal disease has been relatively slow in gaining acceptance. Syphilis may serve a different function in one person who has it compared with another person who also has it as does, for example, the use of an opiate by a successful physician who is an addict as compared with the use of an opiate by a teenage juvenile delinquent addict. Our tools for assessing this kind of variable have been improving continually. The considerable interest in syphilis of many noted psychiatrists—including, in addition to those noted above, Adolf Meyer's contributions to the study of general paresis—makes it a matter of some interest that psychiatric concern with syphilis has been relatively discontinuous (*35*, *36*, *37*, *38*). The several psychiatric contributions at this Forum should serve to reintroduce interest in syphilis into the mainstream of psychiatric research.

In view of our concern with the role of behavioral science in venereal disease programs, it is well to avoid the temptation of making a long list of "needed research," or a list of involved problems in the application of behavioral science to venereal disease. Such lists have a way of conveying a spurious feeling of closure. When we see such a list in print, it often serves not to inspire research but to make us feel that the research already has been or is being done.

Behavioral science applied to the service of the venereal disease problem can help to challenge some of our assumptions about the parameters of the problem. While recognizing that there is much that we do not know, it is only fair to say that there is much that we do know about the venereal diseases from the viewpoint of the behavioral scientist. Much of this is not merely a restatement of truisms into a new jargon, but represents significant and useable knowledge. Other health areas have amply documented their ability to establish appro-

priate career lines and to integrate behavioral science materials productively into ongoing programs (*39*, *40*). There is every reason to believe that programs for venereal disease prevention and control will be more effective to the extent that they employ the relevant concepts, techniques and findings of the behavioral sciences.

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The Poor Predictor of Probabilities: A Psychiatrist Looks at Contagion and Cure

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ABSTRACT

Adequate predictive ability over impulse, in this case sexual instinct and its consequences, is a function of the consistency of one's identity, its harmony with the existing institutions and those incidental external stresses to which man may be individually or collectively sensitive. The psychiatric clinician is concerned with persons who either have failed to establish fitting identities or who find themselves in temporary crises of their customary self concepts. Institutions are often beyond the range or control of the psychiatrist. He can only interpret their meaning and significance to his patient. Through correlation of interpsychic dynamics with external, social points of reference, the individual may become a better predictor of his fate.

SOMMAIRE

La faculté de prédire ses actions avec suffisamment d'exactitude au lieu d'agir purement par impulsion—qui est dans ce cas l'instinct sexuel et ses conséquences—dépend du plus ou moins de logique de l'individu, de son harmonie plus ou moins parfaite avec les coutumes établies, et des tensions qui se manifestent de temps à autre de l'extérieur et auxquelles l'homme peut être individuellement ou collectivement sensible. Le clinicien psychiatre s'occupe des gens qui n'ont pas réussi à adapter leur personnalité au milieu, ou qui traversent des crises temporaires modifiant les idées qu'ils s'étaient faites d'eux-mêmes. Les choses établies sont souvent hors de l'attcinte du psychiatre qui ne peut rien faire pour les modifier. Il ne peut qu'interpréter leur sens et leur importance à son malade. Par l'établissement d'une corrélation entre la dynamique intermétapsychique et des points de repère extérieurs et sociaux, l'individu peut devenir un meilleur prophète de son sort.

RESUMEN

La habilidad efectiva para predecir el impulso, en este caso, el instinto sexual y sus consecuencias, es una función de la consistencia de la propia identidad, su armonia con las instituciones existentes y todas las tensiones incidentales externas á las que el hombre puede sentir en una forma individual y colectiva. El clínico psiquiátrico se preocupa de las personas que ó no han podido establecer identidades adecuadas ó quienes se encuentran en una crisis temporal de sus propios conceptos habituales. Las instituciones muchas veces están muy distantes del alcance ó dominio del psiquiatra. Solo él puede interpretar su sentido y significación al paciente. A traves de la correlación de la dinámica psiquica con la externa, los puntos de referencia sociales, el individuo puede convertirse en un mejor conocedor de su destino.

MAN PRIDES HIMSELF on historical consciousness and on his power of prediction. That all may not be well is exemplified by the coexistence of crystal ball and computer. The psychiatrist seems something like an emergency repairman for medical clinicians and health workers. He is usually called upon to interpret man's irrational actions and behavior. The case of venereal disease is no exception. In spite of adequate information and in the presence of antibiotics that easily should eradicate the affliction altogether, infectious syphilis is on the rise (*3*).

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By and large, people do not want to become sick. If they persist in doing so, they are actually courting danger. They certainly do not measure up to their professed ability to predict. And therefore the psychiatrist is asked to explain such failure of internal human organization in terms of pre-existing or over-riding motivations. With regard to venereal disease, the psychiatrist must straddle the borderline between social situations and individual behavior as they determine the ensuing interpersonal relationships.

Prerequisites for Predictable Behavior

First of all, the *individual* must be in full command of his biological and psychological faculties. He must be of average intelligence,

must be in a state in which his perception is unimpaired and he should be emotionally stable (*4*).

Secondly, in order to make full use of these capacities, he must have non-ambiguous points of reference. These pertain to codes, standards or rules, as they are communicated to him throughout his life by example and edict. Such referential points denote all available information that can be gathered through contact with one's environment.

Thirdly, adequate integrated behavior is dependent on a certain consistency between the internal and external milieu. This means that man can cope better with stresses or conditions to which he has become accustomed throughout his life. When stress is either novel or excessive, a breakdown can occur. It is such a breakdown which jeopardizes logical prediction.

The first category of these prerequisites constitutes integrated behavior, as it is based on endowment and life experiences. The second group is social in scope. It comprises tradition and culture which form the context of our biologic and psychologic existence. Into the third order fall those inescapable relationships between an individual's internal needs and external satisfactions or frustrations. The degree to which self-awareness, harmony with one's culture and reasonable anticipation of difficulties blend, determines what one may call mental health and allows the individual to be master of his fate. If such synthesis would be feasible at all times, man still would live in paradise, where there seemed to have been no need for prediction. Once he was expelled from the garden of Eden, he had to rely on his wits to control his impulses and on foresight to master his environment.

Sexual Drive, Promiscuity and Venereal Disease

Venereal disease, from a psychosomatic point of view, is said to be an index of promiscuity (Ruesch). This, in turn, should depend on the way in which man handles or succumbs to his natural sexual impulses, be these defined in biological, psychological or theological terms. Man has extended sexuality way beyond his procreative ambitions and thus has subjugated what once may have been meant to serve the survival of the species to his pleasure and also, perhaps, sorrow.

From a psychological point of view, sexual drive and sexual activity are only loosely related. One knows that sexual overactivity may not only reflect mere licentiousness, but also doubts about one's value as a man or woman. Promiscuity has psychological as well as social qualifications. This becomes apparent when one compares various definitions for promiscuity. They range from "those transient sexual relationships that end after intercourse" (Wittkower), to the number and frequency in the change of sexual partners (Safier). Both the social scientist and the psychiatrist acknowledge that promiscuity exists. The former is concerned with the institutions and organizations that hinder or favor promiscuity; the latter with a person's motives to defy sanctions and, in the case of venereal disease, to take risks in spite of the possibility to predict.

Psychiatric studies of patients who contracted venereal disease refer to personality characteristics that are deviant from the norm. Almost all authors concur that undue promiscuity is a symptom of personality disorder and therefore portrays deficient personality integration. Wittkower related promiscuity to "an incapacity for deep attachment to any one woman or to a deficient amalgamation of feelings of affection and sexuality." Thus it would be more a matter of morale than of morals. He also states that promiscuity is rarely the result of mature sexual interest but rather an attempt to relieve acute psychological distress (*17*). His psycho-social analysis of promiscuous venereal disease victims points to a history of broken homes, unresolved conflicts regarding their families, irregular work habits, heavy drinking and general neurotic trends. Watts and Wilson refer to "unstable men who do not control themselves in *any* aspects of their lives and also to heavy drinkers," while Richman generalizes that promiscuous men in the Army were found to be immature in attitude and behavior and in general too dull to be good soldiers. Ruesch in his psychosomatic study on delayed recovery from injuries, illnesses and operations, obtained personality profiles of patients who at any time during their life had a venereal infection. His observations indicate that former venereal disease victims are more abnormal on most scales by comparison with control groups. In particular, women seemed to have a more abnormal personality than men and therefore showed greater differences from the mean of the total group. They also had lower IQ's by comparison with males of the same group, showed higher scores on hysteria scales, but surprisingly, neither men nor women indicated high degrees of psychopathy which is commonly identified with a propensity to promiscuous behavior. This last observation suggests that from a purely psychological point of

view neither sexual drive nor promiscuity, as they may lead to venereal disease, can be assessed and evaluated unless one correlates it with the broader frame of reference in which the patient incurred the infection.

Psychiatric Illness and Venereal Disease

To follow Percival Bailey's thinking, meningo-vascular syphilis is no longer the psychiatrist's concern. However, one may ask whether disturbed behavior during the course of major psychiatric illness could increase the risk of acquiring venereal disease. According to the nature and degree of a psychiatric illness, the patient's ability to predict and to judge may vary. People who are mentally retarded or feeble minded will always have to rely on the guidance of others. Psychotic patients, if one excepts the manic-depressive, are usually too preoccupied with problems of individual, social and psychological survival to become unduly promiscuous. On the other hand, psychoneurotic persons, being beset with an excessive amount of consciously experienced anxiety, may consider caution the better part of virtue. Thus the psychotic does not have to predict, while the psychoneurotic patient anticipates with pessimistic accuracy.

This leaves us with that large segment of individuals who nowadays crowd a psychotherapist's office in search for solutions of their daily problems of living. It does not suffice to label them as character disorders, socio- or psychopaths, or as just plain maladapters. Whatever they attempt, however they go about it, and what consequences they meet, they seem often to be curiously unable to predict the outcome of their ventures. Whether they engage in a new business, marry on impulse, or oversleep an alarm clock, a blindness for the obvious or simply an inability to predict, heralds failure. Sexuality is no exception. We encounter the person who needs a provider but looks for a sexual object instead, or talk to a man who, in search of a mother-figure, has become engaged to an infantile girl. The search for psychodynamic motivations seems often premature, as long as the context in which such confusion arose has not been defined. The sociologist may explain such predicament in terms of ill chosen roles; the psychiatrist thinks in terms of identities. From a psychiatrist's point of view, deficient predictive ability and unawareness of pertinent identity go hand in hand. If a person's concept of himself is poorly developed, he loses whatever points of reference he may have had under crucial and immediate stress. This goes for the immature adolescent, the sexual neophyte, the unacculturated as well as for the displaced person. It seems equally valid for the depressed, the deprived, and for the girl who stays on after the party is over. Identity and situation no longer fit, and intellectually undercontrolled behavior comes to the fore. But what are the internal and the external safeguards? They must be a composite of internalized life experiences and of institutions which sanction or prohibit uncontrolled acting out.

Internal Controls

Intellectual

Intellectual control over impulsive sexual behavior is an ideal more than a reality. During the first world war a then newly founded corps of army psychologists correlated intelligence scales of recruits with most any known situation and affliction that could befall the inductees. A curious item (*18*) reports that in a certain southern camp intelligent white soldiers had a low incidence of venereal disease, while for the ethnic minority, the opposite ratio prevailed. One is tempted to interpret this discrepancy in terms of perhaps none too hospitable an attitude on the side of the population which surrounded the camp. Aside from such an anecdotal oddity, it seems generally assumed that health education can prevent illness. If one confines health education merely to the dissemination of information by all kinds of communication media, one should not be surprised about shortcomings in the intended results. In its broadest sense, education has the traditional goals of disseminating information, of acquiring skills, and, perhaps the most important feature, of influencing the learner's attitude. This last aspect encompasses motivations and clarification of identities.

Emotional

Emotional security is provided by one's upbringing and one's continued comfort within the existing surroundings. Frequent changes in habitat, social shifts upward or downhill, tend to disrupt such a state of affairs. Parents can ameliorate the unavoidable. But the child who finds himself transplanted from country to country, from state to state, or from suburb to city, is bound to have troubles in identity. He finally may embrace any or all groups that merely tolerate him, regardless of his own background or their own suitability. The youngster will emulate the chosen group's behavior and mores and have no option whether it fits him.

Actually, left to his own devices, he becomes an identity drifter who belongs nowhere and remains beholden to nobody. Impulsive actions will supersede premeditated behavior. The cradle of sexual release is but one of his occasions for comfort.

On the other hand, emotional controls over purely affective sexual urges can be highly successful if they provide alternatives. They should not be interpreted as mere "togetherness" when father and son attend Sunday school or a baseball game. Emotional controls are predicated upon actual achievement and the enhancement of personal self-esteem. What one can really do or accomplish counts more than what one was supposed to fulfill, be it in terms of one's own or of parental expectation. The psychiatrist does not believe in rote, but wishes that everybody could find his own identity as it relies on basic forms of self-expression. Thus, the emotional controls from within remain a result of earlier experiences but continue to be subjected to the judgment of the contemporaries.

External Controls

Social Role and Identity

Emotional security is enhanced by knowing what and who we are; in other words, by certainty of our identity. Identity formation is a function of individual growth and surrounding society. It is therefore natural for adolescents or young people to have a less clearly defined self-concept. The corresponding figures about venereal disease rates (*6*) among adolescents, marginal or unacculturated groups are not surprising. Such people, be it by virtue of age or cultural detachment, lack a clearly defined pattern and definitive points of reference. On the other hand, there are also a good many people who for reasons of their early psychodynamic development have failed to achieve an individual identity. They may show themselves as over- or under-adapters. On a larger scale they represent that segment of the population whose conduct remains almost entirely dependent on the existence of institutions and social circumstances in whose *formation* they neither took part nor have control. A correlation between existing institutions and individual behavior is the field of the social psychiatrist. Hybrid as this specialist may seem to be, he is probably a promising collaborator for the social and health sciences and can represent that kind of a therapist who achieves a compromise for an individual patient's innate drives and external forces. Such successful mediation should result for the individual in a greater ability to predict. Integrative behavior is not merely achieved by positive abreaction of affect, but by the channeling and synthesis of drives within the boundaries of socialization. The social psychiatrist is equally interested in the motives that make people promiscuous and in the institutions that promote or contain such behavior.

Institutions and Identity

Psychiatric considerations with regard to the person who predicts poorly or who exposes himself to risks and dangers, and acts in what one might call a patently self-destructive fashion (Menninger), cannot be viewed on a purely individualistic basis. The fact that psychological propensities, biological needs, and an ambivalent set of external standards create an imbalance between stress and resistance, may lead to clinical illness.

In our highly mobile and mass oriented society, standards may remain less absolute or available than one would wish them to be. However, even our present melting-pot type of civilization insists on the perusal of traditional rites which re-enforce the feeling of belonging and identity. The religious initiations of the adolescent, highly festive school graduation ceremonies, rituals of marriage and of anniversaries, all tend to re-emphasize where we stand and what we are supposed to be. It goes without saying that sound public health teaching as well as preventive psychiatry must avail themselves of such re-enforcements if they want to aid a human being in the prediction of his fate. The social psychiatrist cannot concern himself in a true sense with the so-called intrapsychic dynamics of human behavior before he has been assured of the social context that provides identity and continuity for his patient.

In the area of sexuality, official and positive institutionalization is only provided by marriage, while in terms of their sexual identities, the growing members of each generation have to rely on prohibitions more than on permission. Even if our post-Victorian and neo-Freudian era prides itself on the abolishment of repression in favor of expression, the institutions and the sanctions have not changed, nor do they provide officially greater freedom for sexual activity. The promiscuous person, regardless of his origin, economic or social status, seems even at a disadvantage by comparison with the pervert. Here now certain legal considerations seem on the road to a more sympathetic understanding.

In other words, when one is left with the unexplainable urge of one's sexual drives, one has to rely more on what one must *not* do, than on what comes naturally, and fear of infection or social ostracism seem to play a truly negligible part. On the other hand, the more certain one is of one's identity in general, of the class, caste or strata to which one belongs, and of one's future expectations, the greater are the chances for predictable behavior.

Circumstances, Conveniences, and Inconveniences Which Threaten to Disrupt Identity

The routines of life may often be tedious. Our industrialized society provides occupations for many, yet just as many fail to derive emotional gratification. The tendency prevails to consider oneself a breadwinner for a certain length of time while one eagerly waits for an age in which one no longer has to satisfy obligations for survival and can concentrate upon one's preferences or hobbies. That such a time may never arrive becomes a facet of pessimistic self-scrutiny and prediction. To counteract the endless boredom, modern man has devised so-called outlets. These range from week-end busy-bodying with do-it-yourself projects to organized vacations, from Hawaiian bachelor cruises to annual conventions. A comparison from psychiatric practice comes to mind. In an attempt to help a patient sublimate, occupational therapists often suggest enterprises that seem patently silly to the patients. The depressed bank director does not want to weave potholders, nor does the non-smoker desire to return home with a set of 50 mosaic ashtrays. During all of these multifarious, if not nefarious, enterprises, people are supposed to take a vacation from themselves and are forcefully induced to change their accustomed roles and identities. It is unlikely that a man who builds an additional rumpus room or surrounds his mortgaged property with a fence will feel very foreign to his habitat. However, the conventioneer and the cruiser find themselves only poorly protected by their peers against wholesale regressive behavior. This can range from fun-making to going off the beaten track, and unpredictable promiscuity in a far city or a foreign land are not isolated occurrences. The emotional aspects under which such behavior takes place can be labeled as post-adolescent rebellion against superimposed restraints, but it can also be interpreted as "identity drifting" at a time when one misses the points of accustomed reference or definite goals. If your spouse accompanies you to a medical convention, your alcohol consumption may be more conservative, unless you prefer to draw a liquid curtain over your past and foreseeable future. The conveniences that are afforded to modern middle class man when he wants to take a vacation from himself are great indeed. They range from golf courses to gambling establishment, and from call girls to organized prostitution. Roepke (*12*) already points to the odd arrangement that twentieth century man must work his head off for 11 months of the year in order to afford himself four weeks of vacation. This span of time is usually too short to become used to a *dolce far niente*.

Having been patently oblivious of more frequent and regular recreational outlets, the *pater familias* then wavers between tension and his wife's request that he relax. Similar and more modern observations have been made by Riesman. It is likely that automation and high-pressure living in the rat race will increase such discrepancies. The basic problem remains that far too few in their pursuit of making a living have acquired identities other than being breadwinners. The often deplored loosening of family ties increases the predicament. If wife and husband work, the male-female role may be jeopardized, the children become unsure to whom they should look for authority, and then, by way of a negative, circular feedback, they re-enforce the self-doubts of their parents. Thus the basis for one's meaning in life becomes tenuously narrow and a breeze may blow the citizen over. Psychiatrists are witness to typical occasions. Holidays that are celebrated at the peak of a pre-holiday exhaustion of the housewife, or preparations for vacations that go to the point of attrition of the breadwinner's physical or financial resources. Other occidental customs like going to meetings, conventions or getting inundated during an office party have already been mentioned. The common denominator during such an occasion is the disruption of one's self-concept or identity, a seeming discontinuity in one's accustomed existence, and a resultant shift in one's relationships with others. Once social role and identity are seriously challenged, man has to grasp for new points of orientation or reference, if he wants to remain in control of prediction.

Woman's Emancipation and Its Influence Upon Sexual Identities

The political, economic, and social emancipation of woman during the last century has altered previous standards of sexual relatedness. Kinsey's (*8*) statistics for professed sexual be-

havior may reflect the willingness to admit hitherto unsanctioned conduct, as much as an actual change in America's sexual habits. On the other hand, his findings demonstrate that during stages of shifting identities (e.g., age, social role, economic status) hetero- as well as homosexual people are likely to take more liberties. Customs and conventions used to provide a clearly defined role or identity for the housebound spouse. Ever since she had to enter the arena of competitiveness with the, after all, biologically different male, woman seems also to have incurred her male competitor's morbid liabilities.

In the area of sexuality, promiscuity harbors different consequences for men than for women. It may be old fashioned to state that men and women may empathize with each other, but cannot truly understand their different biological potentials. An example of "emancipation produced" female discomfort can be seen in an increasing as well as alarming rate of premenopausal depressions in women. Here we see a housewife's identity predicated upon her role as a wife and mother. Once the children approach adulthood, she no longer feels needed or revered. Unless she is successful in accomplishing the transition from cook and bottle-washer to an aggressive real estate agent, she might find herself seemingly useless. Again, at the point of increasing tension, safety valves will break, alcoholism and promiscuity can ensue. Thus, in women as well as in men, confusion of roles and disruption of anticipated identities lead to deficient prediction of expected behavior.

Error, Chance and Risk

To err is human, to take a chance seems often foolish and to calculate risks a necessary concomitant of living. To incur a risk implies the presence of choices that can be made on the basis of foresight and judgment. Prediction is enhanced through individual and collective identities. Thus skin diving has become a national pastime. It is said to afford its fancier a feeling of weightlessness which is enjoyable. However, the larger the group of participants, the less seems the individual concerned whether he dives in shark infested waters or whether there might be a dangerous undertow. Then, what appeared to be group re-enforced predictability of the inherent risk deteriorates to taking a chance collectively. Certain sexual and in particular promiscuous practices can be viewed in a similar light. Here, in the absence of a reasonably secure concept of oneself it might be even more hazardous to take risks on the strength of group approval, and whether one emerges as a hero or a victim becomes ultimately a matter of chance instead of prediction. The solitary "promiscuite" and the one whose promiscuity is based on circumstance or situation represent equally poor predictors, for the abnormal does not become normal merely through ambiguous sanction or permission. Berry's (*5*) paper on predictive behavior in pilots refers to "what erring men call chance." In most lucid terms he describes the tenuous distinctions between error, chance and risk.

The Psychiatrist and the Prediction of Probabilities

In reviewing such thoughts, the psychiatrist must admit that he is ultimately only a small cog in a very big wheel. We would like to help our patients to become better predictors in many aspects of their lives. Thus we try to elaborate and establish suitable identities as the basis for anticipatory behavior in individuals. In the area of sexual impulse which on the one hand is so privately guarded and on the other so publicly consequential, psychological education and growth can only achieve results and meaning, if we can correlate individual and institutional identities. To paraphrase a recent publication (*1*) about the problem of alcoholism and in an analogy to the conquest of typhoid fever during the last century, it may be said that the prevention of venereal infection through psychological eradication of the drive in the individual, may be a hopeless cause, even if time and money were available. So long as typhoid fever was treated in the individual, it ran rampant. Only after new methods and ideas such as sanitary engineering, inoculations, public health laws, etc. were brought into action, was typhoid conquered. One can therefore see the psychiatrist's future contribution only in combination with the major health and social sciences. Specifically, that uncertain identities lead to poor prediction of behavior should direct attention to what helps and what hinders the establishment and the maintenance of a person's identity and dignity.

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Social Patterns and Venereal Diseases

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ABSTRACT

There is a close inter-dependence between social structures and individual pathology. Disease is a deviated behavior occurring when official social norms are violated. V.D. implies the violation of a social norm of restriction of sexual relations.

An inquiry was conducted among doctors, healthy persons, and venereal (syphilitic) persons. The resistance to the inquiry and to having the problem taken up was evident. The denial appeared in the form of ignorance of the incidence of the disease on the part of the doctors, in the form of a belief in an exaggerated facility for treatment and in the form of a pretended ignorance with regard to V.D. It was possible to establish that there is a greater knowledge of it than it is supposed, although the knowledge may be distorted and is always colored by the feelings of fear, shame, and anxiety that this disease arouses.

There is greater knowledge at a higher socio-economic level. On the one hand, it is stated that the disease is common and curable, while on the other, fears and anxieties are shown with regard to the infected individual and the human species. In addition there is a small group which considers the disease to be a necessary experience, which is an expression of a manic denial type of behavior.

Social dynamics are similar to individual dynamics in regard to sexuality in general. There is resistance and denial. One common feature is the displacement of the causes of disease into the foreigner, the migrant, or into pathological social institutions, such as prostitution, delinquency, and promiscuity. The paranoschizoid and depressive defense mechanisms come into play when the violation of the social norm occurs, mobilizing the castratory elements of the social superego, necessitating thereafter punishment, which is thus expressed in V.D. The self-destructive instincts seem to play an important role in this process. It is only through a sexual and family education with dynamic characteristics and oriented toward the achievement of basic satisfactions without feelings of guilt, that these instincts of self-destruction can give way to the most positive instincts of life and the modification of the social norm which is so restrictive.

SOMMAIRE

Il existe une interdépendance étroite entre les structures de la société et la pathologie de l'individu. La maladie est un détournement de la conduite, survenant lorsque les normes sociales officielles ont été violées. La M.V. (maladie vénérienne) suppose la violation d'une norme sociale concernant la restriction des relations sexuelles.

Une enquête fut menée parmi des médecins, des personnes saines et des personnes atteintes de maladie vénérienne (syphilitiques). L'enquête et le fait d'avoir soulevé ce problème provoqua une résistance évidente. Le refus apparut sous forme d'ignorance, chez les médecins, quant à l'incidence de la maladie, sous forme de confiance en un traitement exagérément facile, et sous forme de prétendue ignorance concernant les M.V. Il fut possible d'établir qu'il existe de ces maladies une connaissance plus étendue qu'on ne le supposait, bien que cette connaissance puisse être déformée et qu'elle soit toujours teintée des sentiments de crainte, de honte et d'anxiété que provoque cette maladie.

Il existe une connaissance plus étendue quand le niveau socio-économique est plus élevé. D'une part on affirme que cette maladie est fréquente et curable, alors que d'autre part, on manifeste de la crainte et de l'appréhension vis-à-vis de l'individu atteint et de l'espèce humaine. De plus, il existe une minorité qui considère que la maladie est une expérience nécessaire et qu'elle est l'expression d'un type de refus maniaque de se comporter.

Les dynamiques sociales sont semblables aux dynamiques individuelles en ce qui concerne la sexualité en général. Il y a résistance et refus. Un fait courant consiste à rechercher les causes de la maladie chez l'étranger, l'émigrant, ou dans des institutions pathologiques sociales, telles que la prostitution, la délinquence, et la promiscuité. Les mécanismes de défense paranoschizoïdes et dépressifs entrent en jeu quand survient la violation de la norme sociale, mobilisant les éléments castrateurs du super ego social, nécessitant par la suite un châtiment, qui s'exprime alors par la M.V. Les instincts d'autodestruction semblent jouer un rôle important dans ce processus. C'est seulement par une éducation familiale et sexuelle, avec des caractéristiques dynamiques et orientées vers la satisfaction des plaisirs basiques sans sentiment de culpabilité, que ces instincts d'autodestruction peuvent céder la place aux instincts de vie les plus positifs et à la modification de la norme sociale qui est si restrictive.

RESUMEN

Hay una estrecha interdependencia entre estructuras sociales y patología individual. La enfermedad es una conducta desviada que ocurre cuando se quebrantan pautas sociales oficiales. En la E.V. la pauta social quebrantada es la de la restricción de la genitalidad.

Se hizo una encuesta médicos, personas sanas y enfermos venéreos (sífilis), la resistencia a la encuesta y al problema tratado fué evidente. La negación aparecía en forma de desconocimiento de la incidencia de la enfermedad por parte de los médicos,

de creencia en una facilidad exagerada del tratamiento y de una pretendida ignorancia con respecto a E.V. Se pudo establecer que hay un mayor conocimiento que el supuesto, aunque el conocimiento puede ser distorcionado y esté siempre coloreado por los sentimientos de temor, verguenza y angustia que esta enfermedad despierta.

A mayor nivel socio-económico hay mayor conocimiento. Por un lado se afirma que la enfermedad es común y curable, y por otro se manifiestan temores y ansiedades con respecto al individuo afectado y a la especie. Hay además un pequeño componente que considera a la enfermedad como una experiencia necesaria que es la expresión de la conducta negativa tipica del maniaco.

Las dinámicas sociales son iguales a las individuales en relación con la sexualidad en general. Hay resistencia y negación. Una caracteristica común es el desplazamiento de las causas enfermedad al extranjero, al sujeto migrante, o a instituciones sociales patológicas, como la prostitución, la delincuencia o la promiscuidad. Los mecanismos de defensa paranoesquizoideos y depresivos entran en juego cuando el quebrantamiento de la pauta social ocurre, movilizando a los elementos castratorios del super-yo social que necesitan, por lo tanto, el castigo que se ha expresado entonces en la E.V. Los instintos auto-destructivos parecen jugar un importante rol en este proceso. Solo mediante una educación sexual y familiar con caracteristicas dinámicas y orientada al logro de satisfaciones básicas sin culpa, podrán ceder a los más positivos instintos de vida y a la modificación de la pauta social que es tan restrictiva.

THE SOCIOLOGIC elements playing a role in any vital process lost relevance to the individual complex psychologic functioning, due to the dynamic stereotype created by the psychosomatic concept in medicine.

The individual lives in society and even though society is the result of individuals' actions, it also imposes upon individuals necessary demands for certain common development. Such development is established in agreement with more or less rigid norms which, when disregarded, always represent a very dangerous experience. When obeyed, they represent something that permits the person to live within a scheme of pre-fixed solutions, even though this may not always be convenient (*1*, *2*). There is an interdependence between individual and society (*3*) which determines one's cultural traits and their internalization by the individual (*4*). The person's super-ego, composed of projections, introjections and primary identifications, begins to be formed very early in life (*5*). Similarly, society (*6*) begins to demand instinctive renouncements of its members, determining variable life patterns in each society and in different social classes within a society (*7*). Attitudes, so determined, make up what can be called *social attitudes*, or subjective psychophysiologic responses to *social patterns*. These are institutionalized aspects of the culture that respond to basic requirements of the individual organism.

With regard to society, the sick individual is an expression of a deviate behavior (*8*), a social disturbance. Sickness responds to individual situations and to its determinants via society and its norms (*9*).

Social dynamics establish the characteristics of human relations. When social demands hamper an adequate canalization of the individual's basic needs, disease results as a neurotic defense, or the individual may even die.

Such inter-relations make necessary the psychosocial study of the sick person. In venereal disease, there are very direct connections which they have with the social pattern of our civilization. What we observe in clinical cases, and in the different manifestations of our culture, is the presence of an official and severe restriction of genitality. Manifestations of the first stages of sexuality are usually accepted, even though disconnected from their real content and significance, but genitality is only acceptable through the one single social institution, not always easy to reach : marriage. This situation compels the individual to resort to pathological institutions such as prostitution, or to deviant expressions such as perversions, homosexuality and pre- and extra-marital sexual relations. Such practices produce anxiety and guilt from the breaking-down of the social norms, which has many consequences such as V.D.

Such was our working hypothesis.

Methodology and Findings

In order to verify some related circumstances, we decided to conduct an inquiry designed to elicit attitudes, opinions, and feelings existing in a population unaffected by V.D., and which we call the healthy population. We also checked with V.D. patients and physicians, the latter as institutional figures and thus very identified with the ruling social patterns. We had to emphasize the syphilis problems although gonorrhea is certainly more prevalent,

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Table 1. The disease as considered by the patient according to physicians' estimate

Percent	Same as other disease	Grave	Fearful for its consequences	Shameful	Necessary
1–10	6	8	10	12	9
11–20	6	4	7	4	2
21–30	1	6	5	6	0
31–40	4	3	2	2	0
41–50	4	4	4	1	0
51–60	1	3	0	0	0
61–70	2	2	3	0	0
71–80	3	4	2	1	0
81–90	2	2	1	4	0
91–100	6	3	4	5	0
Total	35=21%	40=29%	39=24%	34=21%	11=5%

even though less hazardous. We had difficulties, and our study must be considered preliminary from the point of view of research technique.

The first difficulty we found was in relation to physicians' resistance in answering the questionnaire. We interviewed 220 physicians and obtained 111 responses. Preserving professional confidences and being afraid of an official investigation for the lack of reporting this transmissible disease were among the reasons usually presented. Many of them were very contradictory, illustrating the strength of *resistance*. Twenty-one percent of the physicians practice dermatosyphilology, and 17% genito-urinary diseases. The nonspecialists see few venereal patients and many of them ignore the actual increase of this type of disease which they thought, in some cases, had practically disappeared.

Physicians estimate that people who get sick, before doing so, have knowledge of these diseases that makes them seek medical services with relative haste. According to the medical profession, patients consider syphilis as very threatening to their personal integrity or their descendants. Actually, many patients might have an indifferent attitude and a small percentage consider V.D. as a necessary experience in life (Table 1).

According to our inquiry, many physicians, even though they try to help their patients, seem to identify with the social pattern and therefore are censuring and blaming the patient. This attitude was confirmed when they gave answers about the disease as due to sexual promiscuity and lack of knowledge and even accepting a genetic responsibility. Sociological phenomena, even though considered, are displaced and emphasized when the physicians were asked about the most recommended prophylactic measures (Table 2). They accept the danger of the censured sexual relations, woman's responsibility in the spreading of the disease, and the care that their victim, the man, should take.

Table 2. The most useable prophylactic measures recommended by physicians [1]

Type of prophylaxis	Number and frequency of answers
Sanitary education	34
Sexual education in schools	29
Use of condoms	30
Immediate individual hygiene	24
Regulation of prostitution, houses of prostitution under sanitary control, to revoke the law of prophylaxis	12
To avoid extramarital sexual contacts, regular life	6
Selection of a healthy mate	5
Massive population control	1
Better social level	1
Sexual isolation for the sick	4
Fulfilling the law of prophylaxis	3
To fight homosexuality	1

[1] This is an open type of question, for which the recorded answers and their frequency are given.

The healthy population selected from different environments, 180 in total, revealed that there is a certain knowledge about V.D., even though this knowledge is in relation with the socio-economic level of the population, which among us implies more education in a higher level. The $\chi^2=15$ is significant at the 1% level which means *there is no independence between economic level and knowledge of the disease*, but there probably exists a strong relationship (Table 3).

This population accepts sexual contagion as causal and makes sexual liberty responsible for

Table 3. Correlation between socio-economic level and knowledge about venereal diseases among the healthy population

V.D. knowledge	Socio-economic level			
	High	Middle	Low	Total number of persons
None	1	8	5	14
Some	3	29	8	40
Good	38	74	14	126
Total number of persons	42	111	27	180

Chi square equals 15.4 is significant at 1% level, which means there is no independence between economic level and knowledge of disease. On the contrary, there is a probable relationship. Yule's Q coefficient $= +0.43$.

the disease, also attributing some participation to genetic factors. There are some intellectualized answers in which lack of consistency is evidenced in other answers to questions of a projective type. These answers show that people do follow a pattern of fear, shame and grave responsibility connected with sexuality. We observe the same attitude attributed to possible patients in the three socio-economic levels (Table 4).

The answer to an open-end question about the most convenient prophylactic measures (Table 5) indicates that there is a tendency to blame ignorance for the presence of this type of disease. An increase is also noticeable with regard to physicians' answers in that regulated prostitution would help in the solving of the problem. There is a sort of idealization of prostitution, when, in reality, at least in our country, abolitionism proved to be effective to a certain degree. We also see here the basic pattern of a

Table 4. Attitudes attributed by healthy population to persons who might have been diseased [1]

Attributed attitude	High	Middle	Low	Total and percent
Indifference	3	15	1	19= 8%
Pride	3	6	3	12= 4%
Shame	7	30	8	45=21%
Fear	27	84	15	126=67%
Total	40	135	27	202

[1] In the three social levels, the most common manifestation is the one of fear, followed by shame.

dangerous sexuality with women's responsibility, and prevention that the man has to have.

The 79 patients who were interviewed also showed resistance. On the other hand, it was difficult to get physicians' cooperation in reaching patients, with the exception of some prominent specialists. Many would not let us see their hospital patients, reminiscent of a situation we found when we tried to interview the whole personnel of some factories or stores in order to have a larger number in our healthy population. We were told that we might be causing serious labor conflicts if we should do it. Private clientele patients were not even interviewed because of their physicians' refusal to do so. They would not even return the questionnaires when they offered to do so themselves.

Table 5. Prophylactic measures recommended by the healthy population [1]

Type of prophylaxis	Number and frequency of answers
Sanitary education	48
Sexual education in schools	54
Education by parents	3
Regulation of a new law of prophylaxis, opening of prostitution houses under strict medical control	32
Use of condoms	6
To close up brothels	9
Premarital medical examination of both sexes	6
Periodic medical consultation	12
Avoiding free sexual relations	2
Radical change of present love schemes	1
Immediate individual hygiene	1
To place the diseased under quarantine	1
To report the diseased	2

[1] This is an open type of question for which the recorded answers and their frequency are given.

On some occasions, the patients themselves were reluctant to answer some questions. We were able, however, to detect that these patients had some knowledge of V.D. before getting sick, even though the proportion was less than in the healthy population, which we attribute to the fact that the majority of the interviewed patients belong to the lower class. We base our assumption as to their knowledge on the answers they gave us about contagion, possible etiology, and the haste they show in getting medical services, many times directly from the specialist. The patients' attitudes are those of fear and shame, even though, as the physicians pointed out, there is a greater degree of simple acceptance of the disease as such.

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We were able to establish that there is more *knowledge* of the venereal diseases than is apparently assumed and that this knowledge is related to the socio-economic level of the population. The attitude of the three groups interviewed show that "fear" dominates the individual's reaction followed by "shame"; also being present, a small component of "pride" for having had this experience. The physicians, for their better command of the problem, increased the rate of attitudes of "indifference," which would mean the simple acceptance of the illness as such, an attitude which they are able to transmit to their patients, thus lessening anxiety (Table 6).

This is confirmed in the comparative table of criteria of healthy and sick persons toward V.D. (Table 7), where we can see that there is a great tendency to consider this disease as curable, in a greater degree in the patients, even though contradiction appears later on in the rate in which they show preoccupation and fear about the possibility that these diseases will destroy not only the individual but the human species itself. This is certainly more marked in the healthy population. There is an evident intellectualization in the manifest attitudes, which is contrary to the latent ones.

Table 6. Comparison of attitudes in regard to venereal diseases, adopted by the three interviewed groups, in percent

Attitude	Physicians	Healthy	Diseased
Indifference	21	8	21
Pride	5	4	8
Shame	21	21	25
Fear	53	67	46

These attitudes are tempered in the patients even though they do not disappear, due to evident medical influence, which is revealed by the greater consistency in the answers indicating the better acceptance of the disease as such with the possibilities of cure and more real seriousness. On the other hand, this situation allows the emergence of some attitudes like shame, according to the general social pattern. Anxiety also allows for a small increase in the manic index, which is how we classify the answers of "pride" or "necessary experience" which are given, repeating the classic attitude of manic denial observed in certain ways of handling anxiety, such as that caused when the "persecutor" is "dominated," a situation which we see very well in the handling of V.D.

Table 7. Criteria on venereal disease in percent

Opinions expressed	Healthy	Diseased
Curable	90	98. 5
Incurable	10	1. 5
Without gravity	32	52. 0
Grave	46	44. 0
Very grave	22	4. 0
Good recovery with treatment	36	62. 5
It brings serious personal consequences	33	20. 5
It will influence descendents	31	17. 0
It is an illness such as any other	70	47. 0
It is a shame to say you had had it	24	45. 0
It is necessary to have it as an experience	6	8. 0

Some other collected data are significant, even though not available in statistical form. There is a resistance to report these diseases in spite of regulations, which puts the doctor in a position of being delinquent. Even though he fulfills the social function of healing, he descends to a level comparable to that of his patients, that is, of the corrupters of a social pattern when he does not cooperate. Some other social agents act in evident violation. There are druggists who prescribe penicillin, and patients who treat themselves, getting medication without a medical prescription. Sexual perversion, especially homosexuality, as deviated ways of genital activity, are also incriminated as responsible for the spreading of these diseases, with the addition, of course, of prostitution, an institution through which the genital exercise is "allowed," and which also serves for the displacement and projection of many of the anxieties aroused for the breaking down of the social pattern of genital restriction.

Discussion

From our data we conclude that we have confirmed that the predominant social pattern in regard to venereal diseases is one of a severe restriction of genitality expressed through well defined attitudes. The first of them is *resistance* to treat the problem, comparable with the one that society shows to consider sexuality in general. The same resistance we found in our physicians is the one reported in some other parts of the world (*10*, *11*, *12*, *13*) and it corresponds to the common belief that decent people have nothing to do with V.D. (*10*). There is a real increase in V.D. which was studied in our country (*14*) in which the curve of syphilis incidence showed a first decline in 1937 after the sanction of Public Law No.

12331, known here as the Law of Social Prophylaxis, and which orders the closing of prostitution houses, the prosecution of illegal prostitution, and pre-marital health certificates for men. From 1942 to 1946 there is an increase which coincides with the political changes that led us to dictatorship, followed by a rapid decrease in 1947 when penicillin began to be used in the treatment of these diseases. A new actual increment is noticed starting in 1959, in which the females' incidence equals males' and where the incidence of young people is greater. The use of antibiotics and their apparent success leads to the denial of the illness and its importance with the characteristics of a paranoid triumph. There is a general popular belief that the treatment of V.D. is rapid and without problems (*14*, *15*, *16*). Even more important many physicians think that V.D. has diminished or even disappeared!

Society, when confronted with this breaking down of prevalent patterns, reacts with defense mechanisms similar to those utilized by the individual. To the *resistance* and *denial* already pointed out, we may add *displacement*. We can see in the history of syphilis, how it was differently denominated, attributing the sickness to the foreigner, and referring it to the discovery of America (*17*). Great upheavals in the history of mankind are always accompanied by an increase in syphilis, which is usually attributed to human mobility but which, in reality, seems to be responding to exacerbation of endemic syphilis, which would indicate an increase by evolution and not by introduction (*18*). The true thing is that these periods of historical changes are also accompanied by an increase of sexuality and a tendency toward a more permissive genitality, which is afterwards paid for with the stigmatizing disease. *Mobility* seems to be a permanent phenomenon since practically in all the countries of the world, the immigrant is blamed as being the carrier of the infection, but also, in each particular country, local migrations from region to region are blamed as causal. There seems to be a concept of an "itinerant male" who uses the local prostitute and transmits thereafter the disease (*12*, *14*, *19*, *20*, *21*, *22*). Our inquiry did not allow us, not even to suspect, the existence of this cause, which we suppose must be due to the social need of a scapegoat to blame. *Denial of reality* as a psychological phenomenon is observed in the emphasis put into the pretended lack of knowledge on V.D., which leads, in turn, to *education* via threatening, prohibitive or restrictive procedures. Our inquiry reveals that there is more knowledge than the one supposed even though it is imperfect or distorted in many occasions. But, "denial pretends to devaluate their own sadism, the dangers coming from the bad objects and also to lessen the importance of the good objects" (*23*), which explains the lack of consideration of these diseases in the current texts of psychosomatic medicine, clinicians' reluctance to treat them, and the resorting to displacement and denial in the fields of socio-epidemiologic research as well as in the popular life situations.

That is why the agents of the disease exist and perpetuate themselves in the history of mankind. In spite of all the efforts to abolish prostitution, homosexuality, etc., society seems to be willing to preserve the institutions and social phenomena which permit the absorption of guilt and responsibility.

It is in this sense that prostitution exists. It is a pathological institution responding to a social need since it allows the schizoparanoid defense of the individuals, who may then have the "bad" woman, the prostitute, and the "good" woman, their fiancée or wife (*24*), which means that they can separate their good, gratifying objects, and their bad, frustrating ones, on the very level of the censured genitality. This situation facilitates the repetition of legal dispositions each time more and more punitive, more and more restrictive, more on the surface and less in the depth, in the psychosocial aspects of the problem (*13*, *17*). In an attempt to evade the restriction, women try to escape from this situation and begin a more liberal genital practice, which makes them, of course, more vulnerable, as statistics already reflect. The "girlfriend," the "amateur," becomes then the carrier of the infection (*16*, *24*). Man is still not incriminated, in spite of certain studies revealing a basic insecurity and serious personality defects in those men who resort to prostitutes (*24*, *25*). It seems that society itself needs some of these sick substructures in which the conflicts of an unsatisfied genitality can be acted out. Here is how we find prostitution, promiscuity, perversion, delinquency, the study of which is needed and highly demonstrative (*10*, *17*, *18*, *26*, *27*).

These residuals of V.D. explain the dominant attitude of fear and shame which not even the medical knowledge of the problem can abolish and which point out how these illnesses are lived and experienced. *Education*, based on fear, on reinforcement of guilt, will not be effective since it does not change it—it only

strengthens the restrictive pattern. This is why measures tending to permit a way of living more in agreement with biologic reality, facilitating the living conditions of the youngsters through a more real knowledge of sexuality, and the socio-economic possibilities of matrimony, are the ones which will finally modify the present incidence of V.D. (*15*, *17*, *19*, *26*).

Conclusions

The roots of social problems are usually masked by the symptoms and signs of a disease (*28*). The patient, as a defective product of society, expresses the failure of the ruling patterns. In V.D., the pattern is the restriction of genitality which is hereby expressed with great severity because there are no possibilities of symbolic deviations, for the malady makes an attack on the very organ which functional exercise restrains. The object-relations of the affected individual are seriously disturbed; introjective and projective mechanisms fail because of the reality of the damaged genitals, and the individual feels pervaded with psychotic anxiety, produced by this confronting of himself with his mistreated instinctivity. He finally resorts to projection of his bad, persecutory and castratory objects, and he puts them in adequate social organs, where the institution will then handle the feelings of unreality, denial, hostility, suspicion (*29*), which on the other hand, are responsible for many studies and some pseudo-educative campaigns in the venereal disease field.

Prostitution, homosexuality, promiscuity are interwoven with genitality and V.D. The previously noted phenomena of projection and displacement, are here necessary. They stem from the responsibility of the migrants, of the "other" social classes, of delinquency, or if not, from simple naiveté or ignorance.

The super-ego very much related, in both the individual and in society, to the mother, appears here with castratory characteristics. It leads to a schizoparanoid defense by which women can be divided into good and bad ones; and by which prostitution, or the genital practice of the more liberal woman, is emphasized, charging then against this real "bad mother" all the punitive measures, the suppressive laws, and the severe regulations. Prostitution is converted, as we already pointed out, to a necessary social institution, needed for the absorbing of the bad objects and the projected impulses, used in the attempted paranoid defenses of society (*29*). The depressive type of defenses can be seen in the idealization of the educative current processes, in the belittling of certain aspects of the problem such as treatment of the disease, and in the inner preservation of good objects with projection into the scapegoat of the bad ones (*29*), such as occurs with the migratory phenomena, political or social changes, and the belief that decent people do not get sick with this type of disease.

Cultural changes always meant progress of mankind, but they were also always accompanied by an increase of individual and social neurosis. Genitality is still being punished, and not only the destruction of the individual is dreaded, but also the annihilation of the species is as well a feared phenomenon which still exists, as we have seen. The guilt of the parents will be paid by the offspring as was dramatically described by Ibsen in his *Ghosts*, showing how mankind endures the punishment of licentious genitality. The human species itself may be annihilated if the official pattern is disregarded. Genitality is only possible through a unique institution, matrimony, to which hindrances are very strong. The threat of destruction is intense, and it is quite possible that if we would not have castration anxiety and a castrating super-ego, perhaps we would not have syphilis, an eminently human phenomenon. On the other hand, all the present concepts on disposition, field, promiscuity, etc., might be only masking the psychologic conditions which lead towards the need of punishment of genitality, which in the last end would be the syphilitic infection (*30*). It is this intellectual interaction of the individual and society, in which society itself participates actively, which leads the individual and society to get sick, to suffer and to live the threats of its possible destruction under the sign of the restriction of genitality. As Freud (*16*) pointed out, society, like the individual, moves under the influences of the instincts of aggression and self-destruction. Life and death instincts fight for supremacy. Social calamities are partial triumphs of the death instinct, but the progress of mankind reflects the power of the life instinct. We cannot venture to guess, whether Thanatos will impose his total and absolute dominion, as seems to be indicated by the war-like preparations all over the world, or whether finally Eros will emerge successful as a result of all the efforts in the field of science and culture that human beings are undertaking. We can only go on in our purpose, helping to understand, and hopefully to solve, the conflicts from which both man and society suffer.

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Social Stratification and Venereal Disease

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ABSTRACT

The purpose of this paper is to clarify some aspects of the relationship between social stratification and V.D. To do this it may be useful to proceed as follows: (1) To define the behaviors which are relevant to contagion and to cure of venereal disease; (2) To analyse the relationship between these behavioral patterns and social stratification; (3) To describe the relevant research problems and their possible practical significance from the standpoint of V.D. control.

The crucial factor in the spreading of the disease may be a quality of the group called openness or closedness. A group is closed when its members bar sexual contacts with persons outside the group. A person may be classified according to whether he belongs to an open or closed sexual group and as to whether or not he exposes himself to medical control and care.

Social classes can be conceived as patterns of invariance with regard to attitudes, overt behavior, norms, symbols, and criteria of status. The practice of seeing a doctor when ill is likely to be more frequent in the upper than in the lower strata of the population.

Significant differences regarding group openness and/or promiscuity may also exist between cultures.

More and more research is necessary concerning behavioral variables which may be relevant to V.D. control. Two kinds of research projects are suggested: Survey studies and experimental studies. Survey studies are designed to observe attitudes, values, and habits relating to V.D. and to discover how these variables may differ in various cultures and classes. Experimental studies test the effectiveness of education and information programs relating to V.D. control.

SOMMAIRE

Le but de cette communication est de clarifier certains aspects des rapports entre les couches sociales et les maladies vénériennes. Pour ce faire il peut être utile de procéder comme suit; définir les comportements qui se rapportent à la contagion et à la guérison des maladies vénériennes; analyser les rapports entre ces comportements et les couches sociales; décrire les problèmes connexes qui sont l'objet de recherches et l'importance pratique qu'ils peuvent avoir du point de vue de la lutte préventive contre les maladies vénériennes.

Le facteur critique dans la propagation de la maladie est peut-être un trait caractéristique du groupe qui fait qu'on le regarde comme ouvert ou fermé. Un groupe est dit fermé quand ses membres n'ont pas de contacts sexuels avec des personnes hors de leur groupe. Les gens peuvent être classés suivant qu'ils appartiennent à un groupe sexuel ouvert ou fermé ou suivant qu'ils s'exposent ou non à une vérification médicale et à un traitement.

On peut considérer les classes sociales comme ayant chacune leur façon de voir en ce qui concerne la façon de se comporter en public, les normes, les symboles et les critères sur lesquels reposent les jugements portés sur les individus. L'habitude de consulter un docteur quand on est malade a des chances d'être plus fréquente dans les couches supérieures que dans les couches inférieures de la population.

Il se peut aussi qu'il existe entre les diverses cultures des différences importantes quant à la pénétrabilité du groupe ou à la promiscuité qui s'y pratique.

Il nous faut beaucoup plus de recherche faite sur les variantes de comportement pouvant avoir une influence sur la lutte préventive contre les maladies vénériennes. On suggère deux genres de travaux de recherche: que l'on étudie les conditions telles qu'elles existent et que l'on fasse des études expérimentales. En étudiant les conditions qui existent, on cherchera à observer les façons de voir, le sentiment des valeurs et les habitudes en ce qui concerne les maladies vénériennes, et on cherchera à voir comment ces variables peuvent changer d'une culture ou d'une classe à une autre. Les études expérimentales chercheront à évaluer le plus ou moins d'effet des programmes d'éducation et d'information ayant trait à la lutte préventive contre les maladies vénériennes.

RESUMEN

Este trabajo tiene por objeto el aclarar algunos aspectos de las relaciones entre la estratificación social y las enfermedades venéreas. Para ello puede ser beneficioso el proceder como se indica a continuación: determinar el tipo de conducta pertinente al contagio y curación de las enfermedades venéreas, analizar las relaciones entre dichos patrones de conducta y la estratificación social, describir los problemas relevantes de investigación y su posible importancia práctica desde el punto de vista del control de las enfermedades venéreas.

Un factor de importancia crucial en la propagación de la enfermedad puede ser una cualidad del grupo denominada "abertura" o "cerrazón." Un grupo se considera cerrado cuando excluye las relaciones sexuales con personas que no pertenecen al grupo. Se puede clasificar una persona basándose en si pertenece a un grupo sexual abierto o cerrado y en si se somete o no al cuidado y control médico.

Se pueden determinar las clases sociales sobre la base de patrones de invariabilidad en cuestión de actitudes, conducta abierta, normas, símbolos y criterio relativo a la posición social. La costumbre de consultar a un médico cuando se está enfermo suele ser más frecuente en las capas más altas que en las más bajas de la población.

Pueden también existir diferencias significativas en cuanto al grado de abertura y/o promiscuidad de culturas diferentes.

Es preciso realizar más investigaciones relativas a los elementos variables de la conducta que puedan ser pertinentes en el control de las enfermedades venéreas. Se sugieren dos tipos de proyectos de investigación: estudios de reconocimiento y estudios experimentales. La finalidad de los primeros es el observar actitudes, valores y hábitos relacionados con las enfermedades venéreas y ver cómo esos elementos variables difieren en las diversas culturas y clases. La efectividad de las actividades educativas y de los programas relacionados con el control de las enfermedades venéreas se miden por medio de estudios experimentales.

AVAILABLE current statistics seem to indicate that the incidence of venereal disease is increasing, despite the fact that new potent drugs have become available for treatment. This situation has stimulated fresh thinking on the problems of prevention and control of V.D., and the behavioral scientist has been invited to join the battle. There is a growing interest in the relationship between medical and behavioral research in general, and this cooperative venture seems to be particularly promising in the fight against V.D. This is because venereal disease is usually contracted in a situation of interpersonal contact and this interpersonal situation is one in which the regulatory influence of social norms and customs has been most strongly felt. It is indeed difficult to think of a culture in which the individual is completely free to choose patterns of sexual behavior.

The purpose of this paper is to clarify some aspects of the relationship between social stratification and V.D. In attempting to do this it may be useful to proceed by the following steps:

1. To define the behaviors which are relevant to contagion and to the cure of venereal disease.
2. To analyze the relationship between these behavioral patterns and social stratification.
3. To describe the relevant research problems and their possible practical significance from the standpoint of V.D. control.

Behavioral Patterns

Two kinds of behavior seem to be relevant to our problem: exposure to *contagion* and exposure to *treatment.*

It may be suggested that the probability of being infected increases with the number of sexual partners. But this is not the whole story: this probability also increases with the number of partners of the partner of this particular person. Let us consider two men: One has contact only with his faithful wife and the other only with the same prostitute. The probability of the second man to become infected is higher since the prostitute has many other sexual partners.

This formulation suggests that it may be useful to develop random probabilistic models of contagion and to compare them with empirical patterns. One immediate consequence of this formulation is to point out that the crucial factor in the spreading of the disease may not be the extent of sexual promiscuity but a quality of the group which may be called *openness* or *closedness.* A group is closed when its members bar sexual contacts with persons outside the group. It is open when such contacts are permitted.

Prostitutes and their clients are by definition an open group. A man and his wife are a very common instance of a closed group, but promiscuous teenagers may also form a closed group. Whether they do this or not may mean a great difference for V.D. control.

It is a problem for empirical research to find out how frequent are closed groups in different cultures and social classes. If the findings show that the only frequent closed group is the married couple, then distinction between groups will become, for practical purposes, equivalent to the extent of sexual promiscuity. In view, however, of the reports about increased sexual promiscuity an investigation of the degree of openness of promiscuous groups seems warranted.

The second relevant kind of behavior is exposure to medical care. It has been repeatedly pointed out that seeing a doctor is important not only for the individual concerned, but also because it facilitates the tracing of contacts.

Thus, a person may be classified according to whether he belongs to an open or closed sexual group, and according to whether he does or does not expose himself to medical control and care.

This typology originates the behavioral patterns given in Table 1.

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Table 1. Behavioral patterns relevant to V.D.

Pattern	Group openness (or promiscuity)	Medical care
1	Yes	No.
2	Yes	Yes.
3	No	No.

The three patterns are ranked from the least to the most desirable from the standpoint of V.D. control.

Belonging to an open group (or being promiscuous) and lacking medical supervision is certainly the most dangerous pattern. Next comes promiscuity with medical supervision, and finally lack of promiscuity and of medical supervision. A fourth pattern is also possible: lack of promiscuity but medical supervision, but this pattern may be empirically rare and of scarce significance. The first two patterns can be dichotomized according to whether prophylactic measures are or are not taken before intercourse.

The empirical problem consists in finding out who are the people in the first and also the second pattern, how they differ from those belonging to the third pattern and what can be done in order to increase the frequency of the third and second patterns at the expense of the first one.

This brings to the fore the possible contribution of the concept of social stratification to the solution of the control problem.

Social Stratification

Social classes can be conceived as patterns of invariance with regard to attitudes, overt behavior, norms, symbols, and criteria of status, and the like. This invariance is usually related to good communication facilities within classes and a certain amount of communication barriers between classes. This may suggest the existence of class differences in the behavior relevant to V.D. control.

The empirical material available on this problem is relatively scarce and most of it concerns people belonging to the second pattern: diseased individuals who have applied for medical care. It is difficult to draw conclusions about the class distribution of this pattern unless we also have similar comparative information on the other two patterns. Furthermore, even the information on the second pattern is often incomplete as it does not include patients who applied to a private practitioner rather than to the clinic or the hospital. Two studies covering a representative sample of a given population have been made in 1948–49 by the Bureau of Applied Social Research of Columbia University, but were not published.

It may be suggested that the practice of seeing a doctor when ill is likely to be more frequent in the upper than in the lower strata of the population. Thus it seems that upper class people will be mostly found in the second and third patterns.

With regard to the second component of the pattern (group openness and/or promiscuity) it may be suggested that some significant difference may exist not only between social classes but also between cultures. Sex differences in permissiveness and the relative status of the male and female partner are also important in this respect.

In very few cultures both men and women are allowed a considerable amount of sexual freedom and this is often limited to certain stages of the life cycle and to relatively closed groups.

The pattern in which only the male is permitted freedom is much more frequent, especially in Southeast Asia. There the same prostitute, usually from a lower class family, may come into contact with men of various social strata. This pattern may result in relatively small class differences with regard to the exposure to venereal diseases.

In the West freedom of sexual choice is severely restricted for both sexes: monogamous marriage is usually the only culturally accepted form of sexual partnership. Sexual promiscuity exists, however, as a trait of deviant subcultures either in the form of contacts with prostitutes or in the form of promiscuous groups either open or closed. Some of these groups may be found in the teenage subculture of the lower classes, but they may exist in higher classes as well, perhaps in closed groups which are also less accessible to the investigator.

Data on the sexual behavior of the American male and female have been reported by Kinsey (*1*, *2*). These data suggest that premarital and extramarital intercourse is more frequent, in the male, in the lower and less educated classes, but these class differences are limited to younger males. Visiting prostitutes seems also to be more frequent among young males of the lower classes. No similar class differences were found with regard to extramarital intercourse of females. However, extramarital coitus seems to be more frequent for both sexes in the urban rather than in the rural environment.

These data suggest the tentative conclusion that some class differences may exist in the American society with regard to extramarital intercourse, but promiscuity does not seem to be restricted to certain social classes.

It is also of interest to note that, according to the same source, contacts with prostitutes represent only a minority of the total extramarital sexual outlets. It is still possible, however, that prostitution may play a major role in the diffusion of V.D., but on this point, too, more conclusive data seems to be needed.

Research Needs

This attempt to define some of the behavioral variables which may be relevant to V.D. control suggests also that our knowledge of this area of behavior is extremely limited and fragmentary. More and more systematic research is necessary. This research should be integrated with plans of action.

Generally, some of the points which may be taken into consideration in planning a research and action program are the following:

1. The investigations should cover both healthy and diseased people. Care should be exercised in defining the population and in drawing representative samples for study. The practice of investigating selected groups of diseased persons (e.g., those applying to a clinic for treatment) does not usually lead to conclusions of practical significance, because of the lack of control data.

2. Extensive studies of attitudes toward sexual behavior and venereal disease control could be made in order to locate cultural, subcultural and class differences along the lines suggested in the first part of this paper. These studies can cover relatively large populations and pinpoint problem areas where more intensive investigation is required.

3. Educational and information programs should be adapted to the specific problems of a given culture or subculture. For example: in a culture where visiting a prostitute is an accepted pattern of male behavior, it may be advisable to stress the need for prophylactic measures and of frequent medical check-ups. This would attempt to switch people from the first to the second pattern of behavior. In the deviant subculture of promiscuous teenagers, an attempt to change from an open to a closed group, i.e., from the first to the third pattern, may have more chances for success.

4. Attempts to change the behavior pattern may be more likely to succeed when they center on the group rather than on the individual.

More specifically, two kinds of research projects can be suggested: survey studies and experimental studies. Survey studies are designed to observe attitudes, values, habits relating to V.D. and to find out how these variables may differ in various cultures, subcultures, classes, and for other background data of the respondents. The purpose of experimental studies is to test the effectiveness of education and information programs relating to V.D. control.

In principle it may be desirable that the survey should cover both attitudes and actual behavior. Consideration should, however, be given to the fact that in several cultures strong taboos exist on the discussion of sexual behavior. In such cultures an investigation of sexual habits would require high level field workers. It may be, therefore, more practical and less expensive to stress the attitudinal aspects of the area. It is suggested that at least the following attitudes should be observed:

1. Attitudes toward premarital and extramarital sexual contacts.
2. Attitudes toward contacts with prostitutes.
3. Attitudes toward closed and open groups in sexual contacts.
4. Attitudes toward taking prophylactic measures before contacts with a possibly infected person.
5. Attitudes toward medical control after contact with a possibly infected person.
6. Attitudes toward the degree of danger from V.D.

Without going into technical details it should be stressed that great progress has been made in the last two decades in the study of attitudes. Asking a few questions and tabulating the answers is a poor method for studying attitudes, especially in a sensitive area of behavior. It is suggested that scaling techniques should be used. One should be careful, however, not to mix different attitudes in the same scale: each attitude should be clearly defined and observed separately. The content of the attitude does not tell the whole story: it is also important to observe other components such as the intensity of the attitude, whether the respondent has a definite stand on this matter and his involution in the problem. The use of refined techniques like these may help to solve the problem of cross-cultural comparison and to determine the influence of verbal habits and of conformity pressures on the responses.

This attitudinal study may lead to a typology of respondents along the lines suggested in the first part of this paper. In addition to the attitudes, the proposed study should also cover

the personal, medical and social background of the respondent. Thus it will be possible to investigate the distribution of the attitudinal types in the various classes and groups of respondents.

An experimental study will usually include at least two samples of the same population. One sample will be exposed to the educational program and the other will not. Both samples will be investigated before and after the program to find out whether the experimental sample has changed, in the desired direction, more than the control sample. More complicated, but also more efficient, types of experimental design are also possible, using more than two samples and investigating simultaneously the effects of more than one type of action. Several of the methodological suggestions made with regard to survey work apply to experimental studies as well. In particular, care should be taken to determine the effects of intensity and involution on the dynamics of attitudes. It is possible, for example, that a given program may strengthen the intensity of the attitude previously held rather than changing its content from positive to negative or vice versa. In such cases the analysis of content alone may lead to the mistaken conclusion that the program had no effect at all. The degree of involution of the respondent on the problem seems also to be important in determining his possible change of attitude.

These suggestions for research are offered with the hope that they will be useful in enlarging the scope and improving the quality of behavioral studies on the problems of V.D. control.

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Cross-Cultural Contact and Venereal Disease

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ABSTRACT

Utilizing the distinctive approach of sociologists and anthropologists, the paper examines, for the first time it is believed, the world-wide distribution of venereal disease as a cross-cultural phenomenon. Descriptive, historical, medical, literary, and ethnographic materials were combed for tangential references to the topic.

The time-dimension approach, related to place of occurrence, was used to trace the dispersion of the treponeme. The chronologic-geographical diffusion of syphilis was first presented; the course of contagion of gonorrhea, as a disease without a reference point of origin, was emplaced from historical and medical references.

The paper's last section is concerned with the development of a series of assumptions regarding subcultural patterns of the disease; hypotheses are presented on the relationship between sub-group attitudes and patterns of behavior in discrete cultures.

SOMMAIRE

Approchant la question du point de vue caractéristique des sociologues et des anthropologues, cette étude examine—pour la première fois, croit-on—la distribution mondiale des maladies vénériennes en tant que phénomène interculturel. Des recherches furent faites dans des écrits descriptifs, historiques, médicaux, littéraires, et ethnographiques afin d'y trouver des allusions au sujet en question.

Le point de vue basé sur la dimension chronologique, relativement aux localités d'incidence, fut adopté pour dépister la dispersion du tréponème. La diffusion chronologique et géographique de la syphilis fut présentée en premier lieu. La voie de contagion gonorrhéique, du fait qu'il s'agit ici d'une maladie sans point précis d'origine, fut traeée d'après des références historiques et médicales.

La dernière partie de cette étude est consacrée au developpement d'une série de présuppositions au sujet de sehémas subculturels de la maladie. Des hypothèses sont présentées sur les relations entre les attitudes subculturels et les schémas de conduite dans des cultures distinctes.

RESUMEN

Este trabajo examina, quizás por primera vez, la distribución mundial de las enfermedades venéreas como fenómeno inter cultural, y utilizó para ello el enfoque característico de sociólogos y antropólogos. Se estudió en detalle material sobre historia, medicina, literatura y etnografía con el fin de obtener información efectiva sobre este tema.

La magnitud tiempo y lugar, con relación al foco de la infección, se empleó para descubrir la dispersión del treponema. Primeramente se expuso la difusión cronológico-geográfica de la sífilis; se trazó el curso del contagio de la blenorragia, usando referencias históricas y médicas y presentando la enfermedad sin punto de referencia en cuanto a su origen.

La última parte del trabajo está dedicada al desarollo de una serie de conjeturas relacionadas con patrones sub-culturales de la enfermedad; se exponen hipótesis en cuanto a la relación entre actitudes de grupo y normas de comportamiento en culturas discretas.

WHEN COLUMBUS and his men returned to Europe and presented a new world disease to an old world ravaged periodically by the Four Horsemen of the Apocalypse, the first page in "cross-cultural contact and venereal disease" became of social, medical, and historical importance (*1*). The syphilitic epidemic which swept through Europe and Asia in the sixteenth and seventeenth centuries was not carried from country to country on the wings of a gnat or, exotically, in a Seville orange. Soldiers and sailors, merchants and diplomates, explorers and missionaries acted as transmitters; they gave and they received, as they met with people throughout the world.

The meeting and interacting of people of different ethnic stocks or identities may be defined as culture-contact. The content and characteristics of cross-cultural contact imply a resultant as well as a relationship: it is a process of give-and-take, an exchange of techniques, traits, and—perhaps—philosophies. The process is not always a balanced one, to each and from each; at times it may be more analogous to rape. Cross-cultural contact may relate to the exchange of ideas or scientific data, or it may involve physical proximity. Two nations may

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share a border, or cross-cultural contact may be the result of the migration of peoples or the subjugation of a nation. One of the base or basic elements in cross-cultural contact frequently is the transmission of germs—both as genetic factors and as microorganisms.

Where there is culture-contact, change takes place. When new customs, practices, and social situations are recognized, they are resisted or they are borrowed; if traits or patterns are accepted, they frequently are reinterpreted before incorporation into the communal framework. All cultural systems do not accept change in the same manner or on the same terms; new items and ideas are perceived in different ways by potential recipients (*2*). Diseases, however, are not subject to the same social controls as new patterns of behavior or technological innovations; although culture-contact may be responsible for the introduction of an illness, the social system often has no means for its control. A biological host is not synonymous with a social host.

Historical Overview: The Spatial Range

Syphilis, as the great imitator, has been mistaken in its various stages as anything from a skin disease to a carbuncle; there is no doubt, however, that it is a world traveller. There is no corner of the earth to which "the evil pocks" [1] has not penetrated—and now there is outer space. The cross-cultural importance of the disease is explicit in the names which have been given to it and the social contacts which have been identified in the medico-historical progression of the treponeme.

In 1493, it is reported, the pilot and several members of the crew who had been on the first voyage of Columbus to the new world were treated by a Barcelona physician, and then—as sailors will after a long voyage—enjoyed the company of the prostitutes on the Portuguese waterfront, who (in their turn) generously passed on the new disease to "certain Spanish adventurers who later became soldiers in the Neapolitan army . . ." (*3*). A year later the French armies of Charles VIII were attacking Naples, but the female camp followers had no enemies; they maintained economic, cultural, and sexual contact between the two camps. The French troops carried back, in defeat, the stigmata of their conquest of the whores of Naples; they blamed the disease on the enemy, and named it the Italian disease. The Italians, however, thought it more appropriate to label the genitoinfection as Spanish or French. The plague had begun its wild crusade.

Syphilis reached Germany and Switzerland and Greece in 1495. In 1496 the syphilitic virus appeared in Paris, and the Netherlands had been infected also. In 1497 the town council of Aberdeen, Scotland, issued an order ". . . for protection from disease which had come out of France and strange parts. . . ." (*4*). Men and women continued to travel, and as bags and baggage they carried a disease which they intimately presented to peoples everywhere. In 1498 England had visitors from Bordeaux who memorialized their stay by venereal contact, and the English called syphilis the French pox; in the same year, pioneering Portuguese took syphilis with them on a long voyage around the Cape of Good Hope to India. In 1499 Hungary and Russia had reported the disease as epidemic. The Moslems driven from Spain carried syphilis into Africa. By 1505 the fever, delirium, sores, and bone ulcers of the disease had appeared in China. Spanish soldiers presented the Filipinos with gifts of "na-na" (syphilis). Each national group gave to others by appellation the responsibility for the microorganism—syphilis has been named the German pocks, the Portuguese disease, the Polish illness, the Castilian infection, the disease of Española (which at that time meant Haiti), and the Turks, perhaps remembering the cross-cultural contact of the crusades, named it the disease of the Christians. However, *morbus Gallicus* gradually assumed the nature of a title for the disease. An Italian physician brought an end to name-calling by writing an imaginative poem which became extremely popular. Fracastorius—poet, physician, and astronomer—published (in 1530) his poetical treatise in Latin hexameters about a shepherd named Syphilis who built an altar to his king and worshipped him. The wrath of Apollo was aroused, and in a fit of jealous rage the Sun God caused a series of misfortunes to fall upon the land, the last of which was a terrible plague. The disease which destroyed Syphilis was named for its first victim (*5*), (*6*). No nation was to blame; the disease had a name. Syphilis belonged to the world.

And the "loathsome disease," as noted in the Diary of John Winthrop in 1646, returned to the new world (two years before the first execution for witchcraft in New England) when "one of the town [Boston] . . . having gone cooper in a ship . . . at his return his wife was infected with lues venera." (*4*) Puritanical Boston men

[1] The Mandates of Emperor Maximilian I (*The Edict of the Sins Against God, 1495*), issued from the Diet of Worms, places etiological responsibility for the "evil pocks" on the vice of blasphemy.

(for she "knew all, but not what she ailed") transmitted syphilis to the Indians. The disease had returned home.

In 1734 a book of medical instructions entitled, in part, *Every Man His Own Doctor or The Poor Planter's Physician* recommended that if Everyman in the American Colonies had both yaws and "the pox" he should "confine [himself] altogether from eating flesh, from a strong drink, and be very careful of catching cold . . . eat seldom of fresh pork which breeds very gross humours; live not too near a swamp; not ever venture upon a strange woman, especially upon Ethiopians." (*7*) And sailors of that time—as they had since the days of Columbus—were assisting in the spread of the disease. Parran reports that a venerable ship of American history, the frigate *Constitution*, carried on its medical log of 1811 the record of the ship-surgeon's treatment of the sailors for syphilis and gonorrhea.

Cross-cultural contact (and the collateral contiguous spread of venereal disease) had taken place in New England; in the Southern states ". . . the promiscuities of chatteldom . . . spread disease among both races," (*8*) or as one commentator phrased it, in an oft-quoted statement, syphilis is "the white man's disease. . . . It has been said that the negro slave brought to America malaria and hookworm disease. If he did, the white man paid him back with usury by giving him tuberculosis and syphilis." (*4*) The various races and ethnic groups flooding into the United States met and mingled, and moved West—and the disease joined the migratory groups, travelling with men and women in wagon-trains over the flatlands and the Rockies, by ship around the Horn, to Eldorado—and beyond.

Ships ruled the waves and the waves beat on shores which had not felt the scourge of syphilis. But, although the cartographic boundaries of Oceania are vast, rollicking American trading vessels and whaling ships searching the seas for whales and tuna, shells and sandalwood were soon making calls at the Pacific islands to trade, to render their oil, to replenish their stores, and to take their pleasures where they could in the sailors' paradise of the 1800's. Rum and disease were offered by the seafarers in return for the favors they received. The Maoris of New Zealand "were able to acquire a fair sample of western civilization, including grog and syphilis," from traders, whalers, deserting seamen, and escapees from the Australian penal colony in New South Wales (*9*). A western observer wrote about the results of such cross-cultural contact: "The islanders were helpless against syphilis. . . . Wounds festered and limbs rotted away. Babies lived for only a short time, and adults slowly wasted away, a curse against the Whites on their lips," (*10*) for bringing the "merike" (American) disease to the South Seas. The natives moved from island to island, and syphilis spread throughout the tropics (*11*).

Diseases were transferred from other "advanced" cultures to other "primitive" peoples of the world. Some groups were enslaved, and miscegenation and venereal diseases were bound by genetic and genitourinary ties; where the population did not submit to conquest they were crushed by venereo-syphilis infections. A commentator on Brazil writes that it "would appear to have been syphilized before it was civilized. The first Europeans . . . did not bring civilization, but there is evidence that they did bring the venereal plague" (*12*). Syphilis had become the third great plague (*13*).

Ethnographic data assume significant biosocial importance in an analysis of the relationship between venereal disease and cross-cultural contact; for a society unprepared for sudden change or an unfamiliar illness may be puzzled, paralyzed, or destroyed by the introduction of an alien concept or by the course of an unknown disease. Different definitions and reactions are manifested in every society toward illnesses which are indigenous and toward those brought in by a "foreign" disease. Diseases are interpreted both biologically and culturally; there are social phenomena and geomorphological factors involved in the perception of, resistance to, and treatment for illnesses. Disharmonies and degenerative diseases introduced into an environment may jeopardize the biological and cultural survival of a group. Venereal diseases, particularly syphilis and gonorrhea, were (during the period of exploration and discovery) carried by one culture group to another: the host, the environment, and the culture were involved (*14*) and these were related to time and place of contact. Although there are limited data available on cross-cultural contact and venereal disease,[2] the historical distribution of syphilis and gonorrhea is an example of what happens when people of different ethnic stocks and identities meet and interact, and are infected.

[2] The Human Relations Area Files at Harvard University and references located at the University of Maine were the primary sources for cross-cultural data.

Gonorrhea: From Time Immemorial

In addition to syphilis, which is melodramatic in its spread and in its identifiable cross-cultural chronological progression, other venereal diseases—chancroid, gonorrhea, granuloma inguinale, and lymphogranuloma venereum—have prosaically and effectively infected man from time immemorial. A few are endemic to certain geographical areas and among certain racial groupings, e.g., both granuloma inguinale and lymphogranuloma venereum are prevalent in the tropics and among Negroes. (*15*)

Literary-Medical References

Gonorrhea and syphilis are of course the best known and the most widely distributed of the venereal diseases. The culture-contact spread of gonorrhea is difficult to trace. The disease seems to have been indigenous to Asia, Asia Minor, and Europe, and its history is a long one. A disease described in the Book of Leviticus as a "running issue" out of the flesh bears a similarity to gonorrhea. Translations from Mesopatamian tablets provide evidence that a discharge from the urethra described by the Assyrian physicians probably was gonorrhea.

Hippocrates wrote of a genitoinfection, strangury, which probably was gonorrhea. The Greek physician, Galen, presented the disease with a name—*gonos rhoia*, the involuntary flow of semen. The artistic representations, uncovered on the walls of the ruins of Pompeii, of the diseased parts of the human body have been identified by physicians as having the characteristics of a venereal disease; interestingly, the anatomical depictions of two thousand years ago presented a collateral relationship between the activities of the Pompeian prostitutes and the genitourinary infections prevalent at that time. Medical historians have identified descriptions of the extensive distribution of the disease in the writings of the Chinese, the Arabs, and the Hindus.

Spread of Gonorrhea

An analysis of cross-cultural factors in the spread of gonorrhea is compounded by its prehistorical loci in widely scattered geo-cultural areas, by the failure to recognize (until sometime in the Middle Ages) the relationship between sexual intercourse and the diseased genitourinary system, and the delayed identification of gonorrhea as distinct from syphilis. In effect, cross-culturally, syphilis and gonorrhea were Hunterian[3] in their appearance among primitive groups; the "civilized" diseases usually travelled together.

Gonorrhea, the Samoans claim, was introduced into the islands in 1787, when the crews of two French ships landed on the islands. They were, at first, received hospitably. Englishmen visiting the islands in 1792 found the Samoans "so friendly" the captain of the ship "had to post sentries to keep the women above decks, for his ship's company was just recovering from an outbreak of 'the venereal disease' (gonorrhea) which they had fetched away from Tahiti." (*16*) Ironically, the English ship was named H.M.S. *Pandora*. Tahiti and the Marquesas had been the first islands in the Pacific to receive the full impact of the discoverers, traders, and whalers, ". . . lusty fellows suddenly turned loose on a Polynesian settlement after months of poor rations, hard discipline, and body-breaking work away from the sight of women and the smell of rum. The pen of a Melville would be required to describe it, and the science of the geneticist needed to appraise its lasting consequences." The Islands were beautiful and the women were hospitable; ". . . many kegs of rum were drained . . . many New England vows broken," (*9*) and venereal disease introduced.

Similarly, in Brazil in the 1500's the European colonists acted like "unbridled stallions." Pedophilia and the spread of venereal disease were "civilized" *modus operandi*; the Portuguese held fast to a "barbarous superstition": they believed that "those suffering from gonorrhea would be cured if they contrived to have intercourse with a [native] girl at the age of puberty." (*12*)

Cross-Cultures and Sub-Cultures

The variations among nations, languages, and groups-at-a-distance from one another are obvious; the cultural life which is presented as existing within a given locality can be—and has been—described adequately in standard ethnographic reports. The holistic approach is based on the assumption that individuals in a particular cultural grouping hold "a more or less consistent pattern of thought and action," (*17*) that a particular culture develops a representative type, a "modal personality." (*18*) The normative pattern in each culture therefore is explicit and identifiable, with only idiosyncratic

[3] In 1767, John Hunter, an English physician, experimenting with infectious materials, arrived at the erroneous conclusion that syphilis and gonorrhea were the same disease.

values and attitudes modifying the configurational impact.

While anthropologists have studied or contrasted total cultures, sociologists have been concerned with internal differences in society, and they have concentrated on the gradations and distinctions among groups which resulted, their research shows, in subcultural characterizations which could be differentiated, specified, and measured. Such subgroups can be identified in various ways: in hierarchical fashion they can be categorized as social classes or occupational strata or they may be conceptualized in terms of deviance from the configurational or legal norms of the society.

Subgroup Attitudes and Behavior Patterns

At this time, and in the context of the orientation of the paper, it is hypothesized that subgroups within a defined social system may vary to a greater extent in thought and action *within* that specific culture than they do with their counterpart levels in a different culture. It is hypothesized that there are sub-cultural variations in human responses which transcend configurational patterns. It is an assumption, in part empirically derived, that segments of a large and completely organized society may vary in their attitudes toward venereal disease to a greater extent than they do to members of another socio-cultural setting at the same status level. It would be of interest and of value to test the hypothesis that lower class Englishmen or Italians will approximate the values of lower class Americans to a closer degree than they would the values of an upper level group within their own national boundaries. The "Rake's Disease" during the Restoration was an upper-class disease in France and in Italy as well as in England; there were sub-cultural determinants which defined the attitude toward venereo-syphilis.

The assumption may be explicit: valuational, attitudinal, and behavioral patterns toward venereal disease will approximate on status-levels among otherwise discrete socio-cultural groups. Thus, cross-cultural studies may be developed *within* and *between* societies—within societies as in the social class research of Hollingshead, Warner, and others (*19, 20, 21, 22, 23, 24*); "between societies" studies would investigate, compare, and contrast not only distinct national types but, cross-culturally, status personality types at levels of stratification.

It is hypothesized that status similarities and differences define role behavior in all socio-cultural aggregates, that venereal diseases and the patterns of rejection or acceptance of socio-medical preventive and control measures are identified and reacted to differently at different levels of social stratification, that such differences are cross-cultural both in socially delineated groups within an "associated value-attitude system" and as "status-linked response configurations" (*25*) between heterogeneous societies. These may be, as Kidder phrased it, "likenesses, not similarities" (*26*).

Social and cultural conditions influence the "receptivity" to venereal disease and to diagnostic, preventive and treatment measures; these will be manifest both within a social system and at different levels of stratification. Venereal diseases will "reflect a specific color from the social setting in which they occur" (*20*); there will be socially exclusive venereal disease syndromes and status-linked response configurations. Arbitrary values will be assigned to venereal disease within a socio-cultural framework, but the degree to which various strata in a society internalize total-culture attitudes and behavior patterns in relation to acceptance or rejection of venereal disease as an illness and as subject to scientific treatment will vary "in kind" according to sub-group precepts.

The conflicts and inconsistencies and competing frames of reference which prevail in modern complex societies may not be present among primitive groups; however, values at variance with dominant thematic norms are present in every social system. "The environment is identical only up to a certain point . . . beyond this point important social and cultural divergencies begin" (*27*); uniformity is one of "the gross externals of cultural environment." Subgroup identification, as Kroeber phrased it in a different context, "inevitably cuts across the social environment." There are accepted modes of behavior for one group which are considered deviant or intolerable in another group within the same social aggregate. Any given situation will be defined within a context of socio-cultural, sub-group, and individual relationships.

However, it should be recognized that subgroup difference may be areal rather than universal; thus, sub-groups within various Euro-American cultural settings may approximate each other at strata-defined levels, but the extension of such identities to a totally different culture-complex may not be possible. The Indonesian-Malayan complex, for example, may be linked internally—and sub-group variations within such a common regional grouping may reveal like-dislike approximations—but the response characteristics will be from a culturo-

areal (typological) base and, therefore, differ from those manifested by sub-groups in Western cultures. In addition, a generational time-factor may be at work within each of these components which will affect the acceptance or rejection of a new culture trait or complex. Attitudes toward venereal disease may be evaluated therefore in terms of changes on a generational continuum, cross-culturally, and as identical, peripheral, similar, as areally similar or as isolated sub-group patterns.

Summary

Historical, medical, and ethnographic data on venereal disease were interwoven contextually and related to the cross-cultural concept that the meeting and interacting of people of different ethnic stocks resulted in the spread of the genitourinary infections. The time-dimension approach could be used in tracing the course of syphilis; gonorrhea, as a contagious disease without identifiable *locus situs* of origin, was surveyed through bibliographic references in many cultures throughout history, and its spread beyond Europe, Asia, and the Near East during the period of exploration and discovery recorded.

There was introduced under the subhead "Cross-Cultures and Sub-Cultures" a theoretical formulation for studies of sub-group differences in the acceptance or rejection of diagnostic, prophylactic, and preventive programs for the effective elimination of venereal disease. It was hypothesized that within areal typologies strata-identified differences were of more importance than configurational patterns in the attitudes manifested toward venereo-syphilis, and in relation to the measures which might be taken for prevention and control of the disease. A research assumption advanced would correlate status-position in divergent societies, compare differences between groups within a socio-cultural typology, and between groups at "equal" sub-group levels.

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Changes in the Social Climate Toward Venereal Disease in the Last Quarter Century

HUGO G. BEIGEL, Ph.D.

ABSTRACT

The social climate consists of the attitudes of various social groups toward a certain issue. Among the factors that have bearing on the changes in the social climate toward V.D. are developments in medicine, legislation, war, and migration; attitudes toward racial, religious, educational and economic problems; and the prevailing or changing attitude toward sex and sex mores.

In 1938 a program of social control was put into effect. Screening examinations were undertaken, contacts located, the public asked to report suspected cases, etc. Many states were slow to act on the beneficial suggestions. Attempts were made to reduce appropriations. In 1962 two million dollars less were granted than were considered necessary.

Reasons for this resistance are as follows: Syphilis had never been among the leading causes of death. Antibiotics had reduced the time of treatment. Treatment with penicillin was miraculously successful.

The main reason for resistance to V.D. control measures is the fact that it is acquired mainly through sexual intercourse. In spite of repeated demands, hospitals reject syphilis and gonorrhea cases.

A change in the climate toward V.D. is not likely to come from the home.

Private physicians are lax about reporting their cases of V.D.

Our college population, the morally most permissive and venereally least affected group, is as preoccupied with sex as are their age mates in the less well educated classes.

Educators must be taught to convey knowledge of sexual matters to children of various ages.

SOMMAIRE

Le climat social consiste des façons de penser des divers groupes sociaux vis-à-vis d'une certaine question. Parmi les facteurs qui ont une influence sur les changements qui se font dans le climat social vis-à-vis des maladies vénériennes figurent les progrès en médecine, la législation, la guerre et l'émigration; les façons de voir concernant les problèmes touchant aux races, aux religions, à l'éducation et à l'économie; et aussi les opinions regardant les questions sexuelles et les habitudes sexuelles.

En 1938 on a commencé un programme de lutte préventive sociale. On s'est livré à des examens de filtrage; on a repéré des contacts; on a demandé au public de rapporter les cas suspects, etc. Beaucoup d'Etats ont été lents à se conformer aux suggestions salutaires. On a essayé de diminuer les crédits. En 1962 les crédits alloués ont été de deux millions de dollars inférieurs à la somme considérée nécessaire.

Les raisons de cette résistance sont les suivantes: la syphilis n'a jamais compté parmi les principales causes de décès. Les antibiotiques ont diminué la durée du traitement. Le traitement à la pénicilline a réussi de façon miraculeuse.

La principale raison pour résister aux mesures de lutte préventive contre les maladies vénériennes est le fait qu'elles sont surtout transmises par relations sexuelles. Malgré des demandes répétées, les hôpitaux refusent d'accepter les cas de syphilis et de blennorragie.

Un changement dans le climat vis-à-vis des maladies vénériennes n'a pas beaucoup de chances de venir de la famille.

Les médecins privés ne signalent pas toujours leurs cas de maladies vénériennes.

Les jeunes gens qui font leurs études supérieures constituent le groupe dont la morale est la moins rigide et qui en même temps est le moins effecté au point de vue vénérien. Ils sont tout aussi absorbés par le désir sexuel que leurs contemporains des classes moins instruites.

Les éducateurs doivent apprendre à transmettre la connaissance des questions sexuelles aux enfants des différents âges.

RESUMEN

El ambiente social es el conjunto de las actitudes de diversos grupos sociales hacia una cuestión dada. Entre los factores que afectan los cambios operados en el ambiente social hacia las enfermedades venéreas se encuentran los nuevos acontecimientos en la medicina, la legislación, la guerra y la migración; las actitudes hacia los problemas raciales, religiosos, educativos y económicos y la actitud prevaleciente o variable hacia las cuestiones y costumbres sexuales.

En 1938 se emprendió un programa de control social. Se llevaron a cabo exámenes preliminares, se estableció relación con contactos, se pidió al público que reportara casos sospechosos, etc. Pero muchos Estados no respondieron sino lentamente a esas beneficiosas sugerencias. Se trató de rebajar las apropiaciones para ese fin y en 1962 se asignaron dos millones de dólares menos de la suma considerada necesaria.

Las razones a que obedece esta resistencia son las siguientes: la sífilis nunca ha sido una de las principales causas de muerte; con los antibióticos ha disminuido el tiempo requerido para el tratamiento y la cura a base de penicilina ha tenido un éxito milagroso.

La razón principal de la resistencia a las medidas de protección contra las enfermedades venéreas es que éstas se contraen principalmente a través de relaciones sexuales. A pesar de las constantes solicitudes que reciben, los hospitales rechazan los casos de sífilis y gonorrea.

No es probable que el cambio en el ambiente hacia las enfermedades venéreas se origine en el hogar.

Los médicos particulares suelen descuidar el reportar los casos de enfermedades venéreas.

Nuestros estudiantes universitarios, que constituyen el grupo de moral más relajada y el menos afectado por las enfermedades venéreas, están tan preocupados con las cuestiones sexuales como sus contemporáneos de las clases menos cultas.

Es preciso enseñar a los educadores a impartir conocimientos en materia sexual a los niños de diversas edades.

WHAT IS CALLED the social climate consists of the attitudes of various social groups toward a certain issue. These attitudes change as a result of material innovations and shifts of position toward related—and often apparently unrelated—attitudes. Among the factors that have bearing on the changes in the social climate towards V.D. are developments in the field of medicine, legislation, war, and migration; attitudes toward racial and religious, educational and economic problems; and finally the prevailing or changing attitudes toward sex and the sex mores.

The Past

The big events which gave the flux of ideas the direction toward the attitudes of today took place many years before the period I am to discuss. Let me enumerate a few: The rise of Puritanism that made syphilis a whip for sinners in the hand of God; industrialization and progressing urbanization which fundamentally affected moral conduct; the discovery of micro-organisms by Pasteur and that of the *Spirocheta pallida* by Schaudinn and Hoffman; Wassermann's serological test, and Ehrlich and Hata's salvarsan with all its subsequent modifications. Psychoanalytic theories let sex taboos appear in a new light. The high V.D. incidence of World War I gave impetus to ideas of social control. Voluntary organizations blueprinted plans for its suppression. On their initiative legislative action was taken. In 1918 the Division of Venereal Disease Control was created within the framework of the U.S. Public Health Service. In 1919 syphilis was made a reportable disease. Compulsory blood tests were introduced. Pregnant women were required to be examined for syphilis.

The Last Quarter Century

Although with the cures achieved by salvarsan and improved arsenicals by 1934 syphilis infection was cut to about one-fifth of its 1919 rate, it was estimated that between 1935 and 1940 more than 3% of the population were affected (*1*). In 1942 research in venereal disease reaped its great reward. The striking susceptibility of gonorrhea to penicillin was demonstrated and modifications of the "miracle drug" proved effective in the treatment of syphilis. The renewed interest in the medical management of disease resulted in additional improvements with regards to diagnosis, cure, and prevention. The death rate and the rate of psychiatric disability through syphilis fell, and the time of treatment was considerably shortened.

In 1932 Dr. Thomas Parran had expressed the opinion that "syphilis can never be controlled while more than half of the cases are not recognized for more than a year after onset" (*2*).

By 1938 a program of social control was put into effect. It was designed to lift the cloak of secrecy from this type of V.D. and to break the chain of infection. As it evolved, screening examinations were undertaken, contacts were located, the public was asked to report anyone suspected of venereal disease, symptoms and possible consequences were publicized, and those suspecting infection were advised where to seek help. Vice was denounced and prostitution was once again to be removed from the surface of the earth.

The zeal of the militant groups bore fruit: it made many aware of the problem. But the enthusiasm was only partly shared by those whose cooperation was essential.

Resistance

Many states were slow to act on even the unquestionably beneficial suggestions. Twenty years after introduction of the requirement of premarital tests, only 23 states had adopted similar laws. Thirty years later nine states still kept aloof of reason (*3*). Today, 44 years later there are still several states where candidates from all over the country can be married without this precaution. Among the states which went along, some formulated the law in such

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a way that it lost part of its effectiveness. In three, only the groom has to submit to a test; in four, marriage is permitted in spite of a positive test result if the female is pregnant.

Again and again attempts were made to reduce appropriations essential for the control of V.D. As late as 1962, two million dollars less were granted than were considered necessary by the Public Health Service.

There are various reasons for this resistance. One: Syphilis had never been among the leading causes of death. Even before its death rate was reduced from 12 per 100,000 in 1940 to 7.4 in 1948 (*4*) diseases of the heart, cancer, accidents, pneumonia, tuberculosis, arteriosclerosis, nephritis, and others had been more dangerous killers.

Antibiotics had reduced the time of treatment from an average of 18 months in 1918 and 26 weeks in 1940 to two weeks after 1943. The number of days lost by men in the armed forces through syphilis compared favorably with those lost through influenza, trychophytosis and mumps. And since altogether so much noise was made about the miraculous results of the new drug (99% of the patients with primary syphilis and 98% with secondary syphilis were successfully treated with penicillin (*6*), and in the period from 1943 to 1955 the rate of syphilis had been reduced from 447 per 100,000 to 76 per 100,000) (*7*), many taxpayers, legislators and adversely interested groups felt (and still feel) that enough has been done on that score.

In some states the climate toward V.D. is influenced by the race problem. The national average for the white population is 2.3 syphilis cases per 100,000 persons; that of the Negro population is 27.2. In Mississippi, Maryland, Georgia, and Texas the rate of syphilis infected Negroes is between 32 and 34, and in Florida, 40.6 (*8*). In all the states, therefore, where the segregationist tradition prevails, syphilis is regarded as the black man's disease. It is assumedly no concern of the white man as long as physical contact between the races can be prevented. Indeed the high syphilis rate among the Negroes strengthens the race barrier. Why then should white taxpayers waste money on costly health measures?

The main reason for resistance to community measures involving V.D., however, comes from somewhere else.

Venereal disease is associated with sex. Sex has for centuries been denounced in our culture as degrading and contemptible. Even today it is foremost among the matters about which "decent people" do not talk. In wide circles, sex for any other than for reproductive purposes is considered sinful, and any sexual activity outside marriage the vice kat' exochen. Venereal diseases, however, are acquired mainly through sexual intercourse. All the traditional sex hostility therefore and all the rancor stirred by sexual frustrations are mobilized against the pity with its victims. Their predicament is the triumph of the righteous.

Moral Condemnation

Three hundred years have passed since syphilis (and that included at that time also gonorrhea) was declared a deserved punishment for immorality, yet the condemnation of both the disease and the diseased is still with us. V.D. to certain groups is not a sickness like any other, but an exposure of evil and lust to which compassion must be denied. Disguised or undisguised, conscious or unconscious, this attitude can be encountered in private and in public life. In private enterprise V.D. victims frequently are discharged when their illness becomes known (*9*). The boards of education of school systems refuse to employ teachers who have or have had venereal disease (*10*). Hospitals reject patients of this kind. "The pseudo moral attitude," Haggard wrote in 1929 (*11*), "extends even to the hospitals, most of which will not accept for treatment uncomplicated cases of venereal disease. They reject no other disease but the members of hospital boards are influenced by public and religious opinion."

Since then the demand has been repeated that general hospitals be required to accept cases of gonorrhea and syphilis year after year without success (*3,10,12*).

When the quick cures of V.D. were news and hence reported in the newspapers, religious leaders expressed their misgivings. To them, the medical advance had only one meaning: Aiding and abetting immorality. Law makers, compelled to accept certain legislative measures, often inserted a punitive note: Syphilitics must not move from one place to another; they must not leave the state except with explicit permission of the health officer. The premarital examination provision was interpreted in the same way. There can be no doubt, for example, that the intent of the premarital examination is not permanent prevention of the marriage of persons with syphilis, but only delay of marriage until the disease has been rendered non-infectious. Yet Kansas, for one, bars marriages of syphilitics even when the disease is no longer communicable (*10*).

This attitude is still widespread. For years to come hopes for change can only mean: How many of its propagandists and adherents can gradually be converted to a more reasonable view?

In the course of the past two years, I gathered the opinions of college students on various subjects related to sexual behavior, among them venereal diseases. Both males and females, 210 altogether, were undergraduates in their senior year in New York City. Their ages ranged from 20 to 32 years, with a mean of 23. Thirty-eight of them (18%) declared that people afflicted with V.D. were immoral; they should not be coddled because they had only themselves to thank for their illness; they should have heeded the religious teachings; they were undesirable company, psychopaths, over-sexed people without social responsibility, and bad characters. All female syphilitics were prostitutes.

A second group, 11 (4%), approved of health measures, including free treatment, but stated that they would feel uneasy about rooming with such a person, about asking them to their homes, about touching objects they had touched. They would be afraid to work at the side of such persons; would not impose such employees on other employees; would not marry one even after a cure because one could never know . . .

The rest (70.6%) sanctioned positive measures in aid of cure, criticized restrictive measures, rejected social stigmatization, excused V.D. on the grounds of ignorance, loneliness, and stressed the possibility of acquiring V.D. "innocently."

These responses indicate a change to the better in the climate, at least in the college educated stratum. All these opinions were "homemade" or picked up; that is to say, the students had not received formal instruction with regard to venereal disease in college courses.

Sex Education

In fact, this lack is noticeable in many of the answers, irrespective of the stand the responders take. The fears in the middle section often are based on misconceptions regarding the transmission of the disease, but the progressive, too, speak occasionally about inherited "gonorrhea" or of the life-long contagiousness of uncured syphilis.

That naturally brings up the question as to how they acquired their information and whether or not the attitude toward sex education, of which V.D. information would be a natural part, has changed.

A superficial observer may come up with a quick "Yes." More people approve of sex education today than did 25 years ago. One or the other school has courses on relevant topics. Religious bodies of both the Catholic and Protestant creeds have just recently, for the first time, come out publicly with proposals in this respect. The vast majority of those who approve, however, want to reserve the right for guidance in sex matters to the home and to the church. As regards the latter, the project has not yet materialized. But how has parental sex education worked out?

In the first quarter of the century advance-conscious fathers seem to have felt that one sermon, warning the 18-year-old son of the peril of V.D., fulfilled the task. Later, mother took over. She concentrated on the more aesthetic aspects, such as bees and flowers and regarded V.D. as being out of the field of her competence. By 1950, in many homes "discussions relating to sex" still were "strictly forbidden . . . The child is made to feel that all matters concerning sex are improper and shameful" (*14*).

Here are a few data exploring the sources from which people received their sex education:

1924: 4% of college men, from parents; 80.4% from companions (*15*).

1945: Among 2,000 boys, 26% received some sort of sex education from their homes; 88.5% acquired most of their knowledge about sex from companions on the street (*16*).

1953: Knowledge about V.D. as part of the sex education was acquired among 3,000 male graduates by 5.6% from the parents; by 40.4% from companions (*17*).

1960: In a sample of 291 boys, 9.6% from the parents; 65% from male companions (*18*).

In our own sample 12% had first been informed about V.D. in the home and 61% on the street.

Among girls who had received most of their sex information from their mothers, 59.3% declared that it was completely inadequate (*19*). In our own sample 81% of those who had received sex education in the home felt the same way. Similarly 68.6% of teachers believe that the parents of their pupils have failed to give their children sex education (*20*).

These data do not indicate radical changes in the older generation of today toward sex and squash the hope that from the home may come a change in the climate toward V.D.

Adult Reactions

This pessimistic statement is partly borne out by the reaction I received from adults to whom I mentioned the result of my survey. Some (about 30%) praised the majority view as a sign of progress; some (28%) were not interested at all. Some (14%) disapproved of the very discussion of the subject, and some (28%) saw in the students' reports proof for the increasing deterioration of the moral sense.

We are thus confronted not only with the attitude of the student sample but also with an evaluation of their attitude by others. Together they seem to reflect quite vividly the thinking and feeling of the general public, although quantitative relations cannot be established with any degree of accuracy from the two small samples, and changes from previous times to today remain a matter of conjecture.

One change is fairly certain. Within the college educated stratum only few take V.D. as a supernatural visitation—or dare to say so. The majority of them refrains or tries to refrain from moral judgments. But the fears which some express, the uneasiness which some admit, the emphasis which others put on excuses like "innocently acquired," "infected by the spouse," "born with the disease," reveal that there is still a conflict smoldering between the intellectually accepted ideas and half-eliminated prejudices.

As in this group, so have the views expressed in the mass media become more liberal. In particular, between 1950 and 1960, discussions of adultery, promiscuity, prostitution, and V.D. have been conducted more frequently and more rationally (*13*). Yet, unconsciously or covertly, moral condemnation of V.D. victims still persists, although religious terminology has given way to neutral terms. In college textbooks, the author's true spirit sometimes squints through the required scientific objectivity. In one, for instance, one can read: "The concept of stigma attached to V.D. has been modified if not removed. Yet V.D. still carries a certain degree of stigma and, indeed, *ought to do so*" (*9*).

It is even less possible to miss the punitive sentiment in a complaint like the following: "Employers have often given pensions for conditions arising from syphilis without knowing it" (*9*).

Others are more subtle or less aware of the fact that they are violating their own principles. They juxtapose lofty ideals to the depth in which venereal diseases occur. "Conditions responsible for their spread militate against mankind's struggle to achieve maturity . . . Relationships such as prostitution and widespread promiscuity can hardly be said to embrace love in its highest sense" (*12*).

The irony is reminiscent of the days when comic characters on the stage were typified by their tabetic gait.

Control measures for V.D. have not escaped similar criticism. Remnants of the religio-moralistic attitude are held responsible for the phenomenon that some organizations concentrate more on the fight against prostitution than on the improvement of prophylactic precautions (*21*).

The following quotation is likely to support that impression: "Though legal measures cannot stop all prostitution, they can prevent it from being flaunted in the faces of those *decent* people who are not looking for it" (*12*).

Indifference

The ambivalence of the intellectual leaders has contributed a great deal to the indifference that characterizes the greatest number of people in all social groups. Interest in V.D. and anti-V.D. measures fluctuates. It rose when during and after World War II venereal infections soared up. When the newspapers came out with sensational reports about one-day cures, it flared up once more. Then it subsided. The peril was curbed. When reports on failures of the miracle drug multiplied, the public became confused. The distrust turned to rationalizations. Since allegedly only prostitutes spread the disease, the final solution could be left to the police. Soldiers away from home—traditionally the most endangered group—understood that they had to avail themselves of prophylaxis after intercourse with a prostitute, but when their girls were not professionals, why bother?

Surveys on the premarital relations of our youth disclose that fear of pregnancy keeps more couples from complete consummation than fear of venereal infection. Only 14 percent of the females and 26 percent of the males in Kinsey's samples were caused to refrain from intercourse because of the latter (*22*, *29*). In contrast to pregnancy and its consequences or prevention, venereal disease apparently is rarely if ever discussed among dating couples (*23*,*24*). Indeed, there are girls who accede to the lover's plea for sexual intimacy in order to keep him from the claws of a prostitute.

There are other reactions that produce similar results. People may not be indifferent to the dangers of V.D. yet not go along with the

steps taken for its control. According to repeated complaints by health officers, private physicians are lax about reporting their cases. The estimates of not reported cases vary between one out of three, one out of two, two out of three, and nine out of 10.

Unconcern, however, is rarely the guiding motive. Reported patients are subjected to investigations about their contacts before and after symptoms became noticeable. Considering the hostile attitude toward one caught in premarital or extramarital sex relations, the doctor may withhold a young girl's or a married woman's name on the promise that she will somehow persuade her "contact," lover or husband, to undergo an examination. Much can be said against sympathy, but then, where the public attitude toward sex is unreasonable, it must be expected that conflicts arise and that they may be solved by humane feelings.

The private dermatologist's relation to a patient who makes her living by prostitution offers another example. Prostitution is a punishable offense. No prostitute or call girl would ever see a doctor voluntarily even for a routine examination if she ran the risk to be reported. Prostitutes, therefore, seek out physicians who are reputed to be negligent in this respect. If laws and treatment provisions were realistic instead of moralistic, V.D. might be less frequent in this profession. The case of homosexuals is an analogous one with the only difference that they do not yet avail themselves of prophylaxis as call girls seem to do quite regularly.

Teenage Promiscuity

Recently the public again became alarmed. A rise in primary and secondary syphilis had been observed. The figures mentioned for the period from 1957 to 1962 go up 200 percent (*25*). Papers and public screamed about the deterioration of the sex mores.

Actually, this increase may be largely fictitious; that is to say, the higher figures on record may be the result, not of more frequent occurrence, but of greater effectiveness of the control methods: more conscientious reporting, greater awareness of the seriousness of the disease, and consequently greater willingness to seek help, and, eventuated by these two developments, better results of the subsequent casefinding endeavors.

Since, however, the statistics cited and interpreted by the popular media pointed out that the disease increased 59% in the group of the 15–19 year old ones (*26*), sensationalists and moralists overlooked the steeper ascent in the 20–24 age group (73%) and started bewailing the immorality of our teenagers.

Nowhere did I see a mention of the rather pertinent fact that the V.D. rate has always been highest in these two age brackets. Quite naturally, if the V.D. rate increases—statistically or in reality—these ages are inevitably the ones who make the worst showing.

The great surprise, militating against promiscuous teenagers, was that their V.D. rate was ahead of that pertaining to prostitutes. The main source of syphilis were amateurs, unpaid pick-ups, the good-time girls. The comparative figures are 35 to 41 and in some places, 8 to 71 in favor of prostitutes (*27*).

The news, naturally, was alarming. The truth, however, is that this trend could have been noticed a long time ago had not the prevention strategists been so engrossed in chasing the traditional scapegoat. As early as March 1951 a report by the U.N. Secretariat for the Economic and Social Council stated that in the first place the unpaid amateur was responsible for the spread of V.D. (*28*).

The first reaction to this revelation was an outcry of indignation: Sexual promiscuity among teenagers—immorality—deterioration of our moral concepts.

Undoubtedly, our teenagers are less secretive in regard to their sexual intimacies; they start them at lower ages than previous generations did and more of them go all the way. Undoubtedly also, their promiscuous sex adventures pose new problems for V.D. control. They cannot be handled like prostitutes, and parents would not appreciate the application to them of our juvenile delinquency laws.

Moral indignation notwithstanding, the attitude toward the young is changing the climate toward V.D. The voice of insight can be heard to say: Circumstances also are at fault. Young people mature physically at an earlier age nowadays; co-education brings them in easy contact with the opposite sex; reluctant boys are coaxed to ask girls to dances; girls are told they must be popular at any price. As they grow older they become aware that the child's overprivileged status in the home is not matched by an equal high regard in the outside world. They try to recover their significance in various ways; among them are sexual exploits, which combine enjoyment, protest, and popularity.

Many of the conditions that have brought on this development are irreversible; others, such as those responsible for the spread of V.D., can be corrected. And here we have another incipience of change.

The fight for the control of venereal disease always has suffered from the confusion of the moral issue with objective necessities. An old idea is winning more and more followers: To stop battling sex and to start concentrating on the physical and mental health aspect itself. Sex is not only socially important but also ineradicable. Undesirable side effects have little to do with immorality and much with ignorance.

In the group that professes the greatest permissiveness in regard to sexual behavior, the college-educated segment of the population, the V.D. rate is from one-fifth to one-tenth that of the future laborers and unskilled workers (*29*). Teenagers who insist most rigidly that the sex code must be adhered to, violate it in their own behavior more frequently than those who are morally more tolerant toward others (*30*).

These data have important implications for the strategy that ought to be employed in the new phase which the war against V.D. has entered. Our college population, the morally most permissive and venereally least affected group, is as preoccupied with sex as are their age mates in the less well educated classes. Promiscuity *per se*, consequently, does not produce venereal disease. In fact, two studies made in the armed forces show that the V.D. rate of men who are habitually promiscuous is lower than the average (*31*, *32*). The reason is that they take better precautions than do the unexperienced. The same is true for the college-educated group. Their home sex education, on the whole, was as poor as that of the less privileged. But they have supplemented their knowledge by reading, whereas straight informative material on sex reaches only a small segment of those whose education stops in and with high school (*16*, *17*, *19*, *20*).

It is, therefore, sex information that is needed. And it must be given while everybody is still going to school.

Since the parents cannot be relied upon in this respect, we must teach educators how to convey this essential knowledge to the children at various ages. The cooperation of parents and schools is indispensable, but the task itself must be entrusted to specially trained teachers. Their courses must cover all aspects of sex, from the anatomical to the psychological, from the physiological to the social. As a matter of course, this includes objective information regarding venereal disease; that is to say, symptoms, consequences, how they are cured, and who cures them; right and wrong attitudes toward infection; prophylaxis, how to use it and where to obtain it.

Once the concern with matters related to sex is no longer disreputable, medical research can be trusted to fill the gaps in the management of V.D., especially those which still exist in the areas of diagnosis and prophylaxis. Sloppiness, stupidity, and accidents, unfortunately, will always have to be reckoned with, but if free treatment is provided for the poor and compulsory treatment for reluctant patients, and if all possible discretion is exercised in the cases of those who fear the wrath of their families, a climate will develop in which V.D. carries no stigma; in which, therefore, officials and physicians, patients and "contacts" will cooperate in respect to control; and in which those who nevertheless get infected are no longer too ashamed to seek proper medical aid.

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Promiscuity and Venereal Disease

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ABSTRACT

The idea that an understanding of promiscuous behavior can contribute to control and prevention of venereal disease is not new or original; it is an idea which has been neglected.

The following are several important qualities of human relationships that are conspicuously absent in the promiscuous union. One is struck by a lack of tenderness, willingness to sacrifice, give, and understand on the part of the partners. The people involved satisfy their separate goals psychologically.

The roots of promiscuity lie most frequently in the first five years of life, in a parent-child relationship that has somewhere gone amiss. Patients rarely seek psychiatric help because of their promiscuity. A case history of Mr. X showed that his promiscuity was driven by a need to revenge himself on his abandoning mother as well as his fear of involving himself in a trusting relationship with one woman. Two other case histories are cited.

The venereally diseased person is to be seen as suffering from the consequence of his unhappy search for relationships. The explanation of the biological and sociological development of the child should be given prospective parents by parent workshops and trained professional helpers. The child and the adolescent must have youth centers as outlets and be given sex education.

The battle against venereal disease represents a tactic within the greater strategy of the effort we make in assuring a child's growth into a happy human being.

SOMMAIRE

L'idée que le fait de comprendre la promiscuité pourrait aider à la lutte préventive contre les maladies vénériennes n'est ni nouvelle ni originale, mais c'est une idée à laquelle on n'a pas prêté suffisamment attention.

Les qualités suivantes sont plusiers qualités importantes dans les relations humaines et qui font nettement défaut dans les unions sexuelles dues à la promiscuité. On est frappé du manque de tendresse, de bonne volonté à se sacrifier, à donner et à comprendre de la part des partenaires. Les personnes en question satisfaisont psychologiquement leurs buts distincts et séparés.

Les racines de la promiscuité se trouvent le plus souvent dans les cinq premières années de la vie, dans une relation entre parent et enfant qui d'une façon ou d'une autre a échoué. Il est rare qu'un malade recherche l'aide d'un psychiatre à cause de sa promiscuité. Le cas de M. X. montre que sa promiscuité lui venait d'un besoin de se venger de sa mère qui l'avait abandonné et aussi de sa peur de se trouver entraîné dans des relations avec une femme où il y aurait confiance réciproque. Deux autres cas sont cités.

On doit considérer la personne affectée d'une maladie vénérienne comme souffrant de la conséquence de cette recherche malheureuse pour des relations satisfaisantes avec ses semblables. Il serait à souhaiter que l'on explique aux parents en perspective, dans des cercles d'étude et avec l'aide de spécialistes expérimentés, le développement biologique et sociologique de l'enfant. L'enfant et l'adolescent doivent pouvoir s'ébattre dans des centres de jeunesse et doivent recevoir une éducation sexuelle.

La lutte contre les maladies vénériennes représente une des tactiques dans l'ensemble de l'effort stratégique que nous faisons pour nous assurer que l'enfant pourra se développer dans une heureuse harmonie.

RESUMEN

No es idea nueva la que el conocimiento del comportamiento promíscuo pueda contribuir á la represión y la prevención de las enfermedades venéreas; no es idea nueva, sino idea descuidada.

Algunas calidades importantes de las interdependencias humanas que están notablemente ausentes en las uniones promíscuas son las siguientes: Se nota una falta de cariño, de buena voluntad para sacrificarse, conceder y comprender por parte de los compañeros. Ellos procuran alcanzar sus fines psicológicos separadamente.

Con más frecuencia las raíces de la promiscuidad yacen en los primeros cinco años de la vida, en la afinidad entre padre, madre é hijo que de alguna manera haya extraviado. Rara vez buscan los pacientes ayuda psiquiátrica para remediar la promiscuidad. La historia médica del Sr. X hizo ver que su promiscuidad era impulsada en parte por la necesidad de vengarse de la madre que la abandonó, y en otra parte por el miedo de comprometerse en una interdependencia de confianza con una sola mujer. Se citan dos otras historias.

Una persona afligida con una enfermedad venérea se ve como dolienda del resultado de su búsqueda infeliz de interdependencia. La explicación del desarrollo biológico y socialógico del niño debe ser enseñada

674-366°—64——27

á los padres en expectiva en talleres especiales por instructores professionales especialmente edueados. Los niños y adolesceentes deben tener sus centros y deben recebir instrueción sexual.

La batalla contra las enfermedades venéreas es una táctica dentro de la estrategia del empeño que hacemos para asegurar que el niño se desarrolle y llegue á ser persona feliz.

THE IDEA THAT an understanding of promiscuous behavior and the promiscuous patient can contribute to more successful control and prevention of venereal disease is neither original nor new; it is an idea which has merely been neglected. In 1945 Lion and his co-workers (*1*) in San Francisco, outlined a method in which a psychiatric understanding of promiscuity could contribute to effective venereal disease prevention. Wittkower (*2*), in an earlier paper, stressed the relationship of promiscuity to emotional difficulties and warned against a punitive approach. Loeb (*3*) re-stated this view after working with teenagers in a venereal disease control program. It is my wish in this paper, to help further these efforts in our understanding of promiscuity so that we may more intelligently and successfully achieve our goals in venereal disease control.

The definition of promiscuity found in Webster's International Dictionary reads as follows: "The heterogeneous, haphazard mixture of persons, indiscriminately distributed and not restricted to one sort or person." Hinsie and Shatzky, in their Psychiatric Dictionary, define promiscuity as "Intimate behavior upon the basis of casual association." As can readily be seen, the key words here are casual, indiscriminate, and haphazard. These words, though helpful, give us a better description of what is absent in the promiscuous relationship, rather than clarifying our understanding of this type of behavior. So, to start with what is missing, let us outline several important qualities of human relationships that are conspicuously absent in the promiscuous union.

Qualities Absent in Promiscuous Union

First of all, if one studies promiscuous behavior, one is struck by a lack of tenderness, affection, willingness to sacrifice, give, and understand on the part of the partners. The people involved are consumed by the immediacy of their needs and, though physically functioning together, psychologically they satisfy their separate goals. The duration of the relationship is characteristically transient. The pathways of the two people draw closer with the heated need for gratification, cross in the burning climax, cool in the quiescent aftermath, and freeze in its lack of enduring human warmth. That which is shared is physical first and ideational second, if at all. Communication on a verbal level is directed at achieving physical union and only occasionally is there the pretense of true social discourse. The more sophisticated build an aura of passionate love and fiery affair, but careful study reveals that even here, at the core of the fiery furnace rest coals that have never ignited and can never supply lasting warmth. Once completed, the relationship characteristically leaves a hollow unsatisfied gnawing in the souls of its partners—a gnawing which motivates the incessant repetition of the same pattern of behavior with other partners, in other places, and at other times. Only the names have been changed: the plot, the goal and the outcome remain the same.

Roots of Promiscuity: First Five Years of Life

How, then, can we explain what we have begun to see as an empty shell of human relationships? From a dynamic and psychoanalytic point of view, promiscuous behavior is a complex state of affairs. No one causative factor or simple formulation serves to explain promiscuity. To seek an understanding of this enigma we must draw on the total fund of knowledge of human behavior. As Freud has pointed out, the behavior of an individual is governed by two major principles; the pleasure principle and the reality principle (*4*). Whereas the pleasure principle is directed by instinctual drives of a libidinal and aggressive nature, the reality principle is directed by the forces of society and civilization. The harmonious fusion of the two principles characterizes the functioning of the so-called mature human being. At birth, the pleasure principle holds full sway. The child wants what he wants when he wants it. If he is not fed adequately, held, cuddled, and loved sufficiently, he cries, kicks, and makes vigorous protests. Gradually, with growing awareness, ability to reason, and gains in self-control, he begins to appreciate the need to delay gratification. The loss of

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the diaper represents the parental demand that he do what he is supposed to do, where he is supposed to do it, and when he is supposed to do it. He takes greater notice of his body, the differences between his anatomy and those of others, and the pleasurable sensations achieved by parts of his body in response to stimulation. His curiosity reaches unquenchable proportions as his field of exploration spreads from self to the outer world. Thus, while first interested in where he came from, he later wants to know where the stars came from and where does the sun go at night. Nurtured by love, kindness, and firm, adequate guidance, he learns the meaning of true human relationships, as well as love for one's parents, brothers, sisters, and finally his fellow man and future wife. If these links in the chain of development of the child remain whole and unscarred by the many vicissitudes of life, we are offered the opportunity to observe the unfolding of a miracle; the growth of a happy human being.

Faulty Parent-Child Relationships

But here our story must take a bitter twist, for after all we are here to study the pathology of promiscuous behavior. Fenichel indicates clearly that the roots of promiscuity lie most frequently in the first five years of life and in the throes of a parent-child relationship that has somewhere gone amiss (*5*). The child that has missed the warmth of its mother's arms, will, as an adult, seek the warmth of many arms only to inwardly realize that what was once lost or never had can not be replaced by an endlessly repetitive series of sterile relationships. The child whose earliest attachments have been frustrated by interruption and erratic oscillations of love and separation will, as an adult, avoid the possible disappointment of lasting involvement and seek, instead, transient doses of fake love. The child whose early explorations in sexual gratification have been misguided, threatened, or excessively encouraged will seek, as an adult, to gain reassurance of his sexual prowess through repetitive, automatic sexual conquests each of which carries an underlying further threat, and demands further endless repetition. Thus the promiscuous man stands on the borderline of terrifying impotence while the nymphomaniac remains sadly frigid.

Clinical Examples

Perhaps, at this point, some clinical examples will help to illustrate the development of the promiscuous pattern of behavior. It should be noted, at the outset, that patients rarely seek psychiatric help because of their promiscuity. They view their promiscuous behavior as a necessary part of their search for happiness even while recognizing that the happiness it offers is temporary and carries a heavy price of guilt and repetitive disappointment. Mr. X, for example, came into psychotherapy because of a compulsive need to write bad checks and his resultant clashes with the law. After a short while it became clear that one of the purposes of his check writing was to gain popularity with his friends, be thought of as a "nice guy," and be accepted for his willingness to pick up the tab at the local bar. Though married for several years, and the father of two children, he found it necessary to date other women three or four times each week, invariably having intercourse with these women. Mr. X's mother was a busy professional woman who served as secretary for her husband, a successful business man. X was cared for by his mother for the first year and a half of life and then placed in the hands of successive maids. Amongst his earliest memories he recalled that at the age of three he would awaken in the middle of the night and feel terrified that mother had left him and was not returning. Though seemingly given the best of material needs, he could never recall sharing feelings or events with his parents. When he became attached to one maid, she was discovered helping herself to his father's liquor supply and was dismissed. The names and faces of his maids fused into a vague amorphous picture of people who were sometimes good to him, sometimes indifferent, and occasionally frankly sadistic. Though he claimed he loved his wife, he found sexual relations unsatisfactory with her. It soon became clear that his relationship with his wife was marred by an unconscious angry resentment towards his mother who had physically and emotionally separated herself from him at an early age. To love someone with deep involvement increased the threat of separation and disappointment. At the same time his angry feelings towards women prevented him from being sexually tender to his wife. With his dates he would "let himself go." He referred to them as "sluts" and "heads of cattle," took pleasure in his ability to use and conquer them, and spoke of adding another notch to his gun after each successful venture in bed. It became obvious that his promiscuity was driven by a need to revenge himself on the abandoning mother as well as his fear of involving him-

self in a deep and trusting relationship with one woman.

Miss Y tells a somewhat different story. As a youngster she was impressed by the ambitious striving and self-sacrifices made by her mother who held the family together emotionally and financially. Father was a quiet man, a failure in business, and a scholar who used his books as a retreat from human relationships. Y frequently witnessed parental arguments in which her mother berated father for his ineptness, lack of manliness, and his preoccupation with books. Out of father's hearing mother would confide to Y that father failed sexually as well and was, as could be expected from all men, totally worthless. By the age of six Y was torn between her allegiance to mother and her wish for a relationship with father. In mother's absence, on several occasions, she entered her father's study and was surprised to find him warm, capable of loving her, and able to tell her pleasant stories. After these encounters she would feel guilty and could never tell mother of her experience. By fifteen Y, in her craving for tenderness and warmth, became an easy target for the adolescent males in her neighborhood. By the age of nineteen she had had gonorrhea twice and syphilis once. Y revealed that she had never experienced true sexual satisfaction. She was aware that for the moment, while in bed with a man, she felt accepted, warm, and protected. Frequently, rather than intercourse, she wanted only to be held. Each time, however, in order to retain her position in the man's arms, she would submit to his sexual wishes. After each experience she would feel dirty, alone, and empty—feelings which constantly led her to repeat the relationship with another man. Her fear that each man would prove worthless as mother had predicted, prevented her from seeking a permanent partner in marriage. At twenty-one she became pregnant, submitted herself to a criminal abortion, suffered a severe episode of depression and guilt, and unsuccessfully attempted suicide by taking an overdose of barbiturates. Four days after the suicide attempt she called for an appointment and began therapy.

Finally, the case of Mr. Z whose childhood reveals still another set of causative factors. Z's father was an alcoholic who occasionally worked as a barkeeper. When the father was sober he was mild-mannered but distant in his relationship with the child. When intoxicated his behavior would run in two extremes: on the one hand he would roar into the house with a fury and threaten to kill anyone in his sight, while on the other hand he would pull the youngster out of bed in the middle of the night, hold him tightly, kiss him vigorously and repeatedly, and cry while telling the child that he did not mean to be a bad father. It was difficult to ascertain which of these two extremes proved more frightening. Mother also played an important role. She soon gave up any hope of a normal relationship with her husband and directed her attentions to her son. By the time he was three mother was already calling him her "little man." He shared her bed until the age of fourteen, when an uncle advised her that it would be good to discontinue this practice. Frequently, she would dress and undress in front of him and, at times, he would assist her in hooking her bra and drying her back. Overstimulated on one hand by a seductive, love-starved mother, and terrified on the other hand by an unpredictable and violent father, Z found himself in a dilemma as he approached adolescence. Relationships with girls brought panic as he recalled his early experiences with mother and the vengeful behavior of father. He sought a man who could be kind, trusted, and a source of guidance. He rapidly drifted into one homosexual relationship after another, each time seeking a man he could love and who would help him control the impulses that had been awakened too early by his relationship with his mother. At the age of twenty-three he was discovered by detectives while having a homosexual relationship with another man in a subway toilet. He was arrested, placed on probation, and became progressively more depressed, unable to sleep, work, or study. At this point he entered therapy.

Time out for a moment of reflection. How sad the role of a psychiatrist at times—for see what I have done! The aura of passionate excitement, the tingling stories of one night stands at roadside motels, the erotic conquest in a Venetian gondola, and even the traveling salesman stories take on a hollow quality of unfulfillment. How much of a killjoy can one man be? Yet if our eyes are open our work with our patients reveals for us over and over again the sober fact that the promiscuous person is an unhappy person who, under the guise of sex, seeks a taste of human kindness he may have never known or ever successfully find.

It is in the light of these facts that I would propose a new definition for the venereal diseases that we have come here to study and conquer. I would propose that venereal disease be defined as the painful reward of the unhappy individual who unsuccessfully seeks human

kindness and relationships in a crippled and distorted manner. I would propose this definition because of my feeling that it lends new horizons to our understanding of the pathway that must eventually be taken in our battle against venereal disease.

Need for Psychoanalytical Understanding

First of all, while the immunologist searches for the vaccine and the biochemist finds the drugs, the sociologist, psychologist, and psychiatrist must study the vector—the human being. The venereally diseased patient is to be seen not in a judgmental or punitive light but rather as suffering from the consequence of his unhappy search for relationships. His need for guidance, fulfillment and acceptance must be recognized and met. Our interview methods, as taught at the John Friend Mahoney Center (*6*) must be based on this understanding and avoid the instilling of fear and threat in an individual who is already frightened, frustrated, and wounded. The sexually perverted and promiscuous must be dealt with via the candor that comes of understanding that their behavior represents disturbed adaptation rather than criminal offense and requires objective exploration and frank guidance rather than hushed whispers and shocked demeanor.

Child-Parent Sex Education

Secondly, the prospects for preventive work are as promising as they are enormous. The candid explanation of the biological and psychological development of the child is a requirement in the education of every prospective parent. The importance of the early parent-child relationship, its vicissitudes, needs, crises, and joys must be spelled out carefully and succinctly for all future parents to study and understand. Child guidance clinics, parent workshops, and trained professional helpers can come to stand as a first line of defense in the preventive battle against venereal disease.

Child-Parent Guidance

Finally, the growing child and adolescent must, together with his parents, have at his constant disposal, trained sources of ongoing guidance and support. Youth centers must supply constructive outlets for vibrant growing energy as well as continuous sources for healthy and meaningful human relationships. Sex education should be given, preferably with the cooperation of the parents, in appropriate doses, at the appropriate time and in the appropriate manner. Together with sex education must come a carefully conceived fusion of moral values, the benefits of delayed gratification, and the values of enduring human relationships founded on love.

Thus, as I see it, the battle against venereal disease and the understanding of its promiscuous victim represents a tactic within a much greater strategy. That strategy is the effort we make in assuring a child's growth into a happy human being, capable of achieving its full potential, forming lasting relationships, and leading a life of contentment, constructive effort, love, and dignity.

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Significance to the Person of His Attitudes Toward Venereal Disease

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ABSTRACT

A set of latent public attitudes still continues to maintain the problems of syphilis and gonorrhea. To make effective inroads upon this significant problem we must define scientifically our conception of attitudes and how they are developed. Attitudes take their coloration and special dimensions as a result of class, subcultural, ethnic, familial and educational associations, and are never universally subscribed to.

Widespread attitudes still exist on all class levels which foster ignorance concerning the care and treatment of venereal disease itself. Bureaucracy within agencies and organizations is also a problem.

It is suggested that the character of attitudes toward most basic problems and moral proscriptions stems from the individual's self-conception. This self-conception is the matrix from which most basic attitudes, including sexual attitudes, are developed.

Attitudes are defined as basic tendencies to respond automatically to certain conditions, persons, and things in terms of evaluative standards. Sexual attitudes consist of integrally related but separate habit patterns which result from the individual's role performance in family and peer-age groups.

It is concluded that among marginal and economically "depressed" groups with "female-based" family patterns, the sources of venereal disease infection stem from masculine-dominated sexual contacts and certain deviant sexual sources. Identification and treatment of venereal disease involves responsibility to deal with economic, cultural and personality problems to which such disorders are related.

SOMMAIRE

Un groupe de manières de voir latentes dans le public continuent à permettre la persistance des problèmes concernant la syphilis et la blennorragie. Pour faire des progrès vers la solution de ces problèmes importants nous devons définir scientifiquement notre conception des états d'esprit et de la façon dont ils se développent. Les manières de voir tirent leurs nuances et leur plus ou moins d'ampleur du résultat d'associations regardant les classes sociales, cultures secondaires, les questions ethniques, familiales et éducatives. Elles ne sont jamais universellement acceptées.

Il existe encore à tous les niveaux des classes sociales des manières de voir généralisées qui favorisent l'ignorance des soins et des traitements à apporter à la maladie vénérienne elle-même. La bureaucratie à laquelle on se heurte dans les agences et les organisations est elle aussi un problème.

On suggère que le caractère des manières de voir envers la plupart des problèmes fondamentaux et des interdictions morales vient de la conception que l'individu a de lui-même. Cette conception de soi-même est la matrice d'où viennent la plupart des états d'esprit fondamentaux, y compris ceux qui concernent les questions sexuelles.

On définit les états d'esprit comme étant des tendances fondamentales à réagir automatiquement à certaines conditions, personnes et choses en terme de normes d'évaluation. Les attitudes envers les questions sexuelles consistent en habitudes séparées mais intégralement apparentées qui sont le résultat de la façon dont l'individu se comporte dans son groupe familial et parmi ceux qui sont de son âge.

On conclut que dans les groupes économiquement "faibles" ou parmi ceux qui ont à peine de quoi vivre, la famille repose sur la femme, et les sources d'infection vénérienne viennent des contacts sexuels que les hommes ont en dehors de la famille et de certaines sources sexuelles s'écartant de la normales. L'identification et le traitement des maladies vénériennes supposent la responsabilité de travailler à la solution des problèmes touchant aux questions économiques, culturelles, et de la personnalité, problèmes auxquels ces désordres sont apparentés.

RESUMEN

Un conjunto de actitudes latentes del público hacen que la sífilis y la gonorrea sigan constituyendo un problema. Para poder realizar un avance significativo en este problema de tanta importancia, es menester definir de un modo científico nuestro concepto de actitudes y de cómo las mismas se desarrollan. Las actitudes adquieren sus características y dimensiones especiales como resultado de relaciones clasistas, subculturales, étnicas, familiares y educacionales y nunca cuentan con una adhesión universal.

Existen todavía, en todos los niveles, actitudes ampliamente difundidas que alientan la ignorancia respecto a la atención y tratamiento mismo de las enfermedades venéreas. Constituye igualmente un problema la burocracia existente en los organismos e instituciones.

Se sugiere que la naturaleza de las actitudes hacia la mayor parte de los problemas y prohibiciones morales tienen su origen en el auto-concepto del individuo. Dicho auto-concepto es el germen del que surgen la mayoría de las actitudes, inclusive las sexuales.

Se definen las actitudes como tendencias básicas que llevan a una respuesta automática ante ciertas condiciones, personas y cosas en función de las normas evaluativas. Las actitudes sexuales consisten en moldes habituales independientes, pero integralmente re-

lacionados entre sí, que tienen su origen en la forma en que el individuo desempeña su papel en la familia y en grupos integrados por individuos de su edad.

Se ha llegado a la conclusión de que en grupos marginales y los de precaria situación económica con hábitos familiares centrados en lo femenino el origen de la infección venérea se encuentra en contactos sexuales en los que predomina el elemento masculino y en ciertas desviaciones sexuales. El descubrimiento y tratamiento de las enfermedades venéreas conlleva la responsabilidad de buscar una solución a los problemas económicos, culturales y de personalidad con que se relacionan tales desórdenes.

WHILE IT MAY be true that an individual may be known by the attitudes he keeps, it is also true that the attitudinal structure of the personality may, in certain respects, be a highly precarious enterprise. In the case of venereal disease, wide disparities still exist in the manifest expression of the public attitude as compared to the latent functions expressed in behavior patterns conditioned by reality situations and specialized interests. It would appear obvious that in the case of such egregious social ills as syphilis and gonorrhea, subject to control and eradication by virtue of the significant medical and epidemiological controls of the 1940s, the public attitude should, by this time, have been able to support a program for the eradication of an age-old scourge. The paradox is that the hard-gained knowledge of the 1940s has not been sufficient to overcome a set of latent public attitudes which still continue to maintain the problems of syphilis and gonorrhea (*1*).

The source of this resistance to a change which can only be construed as beneficial inheres in a variety of separate attitudes. Whereas principal among the complex of attitudes which relate to the control of venereal disease is the generic and multifaceted attitude towards sexual behavior in general, there is, at the same time, a variety of other closely-linked and integrally related attitude-patterns involved in such behavior which are especially difficult to control. It is to these we must turn, if we want to make effective inroads in the attack upon this significant problem. To do this, we should have a clearcut conception of what we mean, in a scientific sense, in our conception of attitudes and have a coherent conception of how they are developed. Secondly, we should recognize what should ordinarily appear as a commonplace and yet which is frequently overlooked, *viz.*, that attitudes are never universally subscribed to, *even by those with identical interests.* Attitudes invariably take their coloration and special dimensions as a result of class, subcultural, ethnic, familial, and educational associations.

The fact that venereal disease has not disappeared cannot be said to be due to the fact that people do not want to get rid of it. Venereal disease has not been removed in those areas of the world where knowledge and facilities are sufficient for its eradication because of the failure to modify substantially fundamental attitudes concerning family and sexual behavior whose conjoined operation still, upon occasion, produce continuing and sporadic rates of syphilis and gonorrhea. To get at the basic attitudes conducive to a given *problem-complex*—and this is the only way in which venereal disease may be apprehended—is a difficult and subtle process. We have an entire spectrum of attitudes to contend with, operating on different levels, and requiring some contention with separate attitudinal problems on different levels of operation. To begin with, we have, first of all, those widespread attitudes which still exist on *all* class levels which foster ignorance concerning the care and treatment of venereal disease itself. These are far more extensive, I believe, than is generally appreciated, even by the specialists and educators who work in this area. Secondly, we have a variety of administrative attitudes which stem from the bureaucratic structure itself which makes it difficult to accord to the public some of the remedial measures which are clearly prescribed. Bureaucracy in modern, large-scale society is inevitable. However, bureaucracy tends to engender a series of attitudes concerned with the maintenance of organizational procedure and the need to cultivate a favorable public impression which, upon occasion, may have little relevance to the broader essential social functions of a given agency, whether it be governmental, educational, or business. To develop flexibility in approach within a pattern of organizational procedures which, by their very nature, tend to become rigidified, is a constant problem of all agencies and organizations. Among a number of such bureaucratic attitudes, for example, is the one which frequently arises concerning the character of the kind of sexual education to be given to our young and how such education is to be

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administered. The character of such bureaucratic attitudes which frequently lead to resistance to procedures which may prove of obvious value was clearly borne home to me in a recent experience in an Asian country. In this instance, what appeared to be reasonable attitudes to maintain the national public health agency constantly obtruded upon the promotion of significant field services. Thirdly, we have varying degrees of public acceptance concerning the ways in which family life and sexual behavior should be comprehended—reflective of a variety of historic and contemporary social attitudes—and underscored in each case by the peculiar complexion of class, ethnic, subcultural, religious, and educational interests. Finally, we have an extensive series of latent attitudes, also reflective of subcultural patterns and values, which, in effect, will determine how specific personal situations will be met by men and women of given groups.

Thus, when we speak of the significance to the person of his attitudes toward V.D., we must keep in mind the enormous variations of the individual's attitudes in terms of his separate cultural and class associations. It is instructive to recognize that, at certain points, the attitudes of individuals of different class and cultural associations will coincide; at other points, they will differ sharply. A clear example of this can be seen in attitudes of young male adults of working class and middle class backgrounds. The working class youth, for example, will accept pre-marital sexual behavior as part of riotous weekly recreational bouts, while the middle class youth will tend to keep his sexual behavior under greater control. Among working class youths, for example, there is a far greater tendency for group sanctioned and pseudo-socialized sexual experience as contrasted with a middle-class attitude which tends to keep its sexual flings under private and clandestine cover (*2*, *3*). The result is that there is invariably greater potential danger of venereal infection among working class youths than among young middle class males. There is, on the other hand, considerable concurrence in the sexual attitudes of both groups which maintain that precautionary safeguards to prevent pregnancy should invariably be taken whenever possible.

In respect to this latter point, the difficulty in assessing attitudes towards V.D. is heightened immeasurably when we regard such problems in cross-cultural perspective, as I've recently had occasion to do. For example, the references which have just been given to coincidence and opposition of attitudes of working class and middle class youths apply largely to our own society where the status of illegitimacy still reflects deeply imbedded patriarchal elements and institutionalized family controls. Class differences and agreements in attitude, however, would be quite different in certain South Asian cultures where class and caste differences alter the patterns of sexual contact and the character of the judgment concerning illegitimacy.

Self Conception Basic to Attitudes Toward Sexual Behavior

We may borrow one important emerging principle, however, from the growing literature of research in the field of attitudes. This principle appears to suggest that the character of attitudes towards most basic problems and moral proscriptions and sanctions stems from the individual's self-conception. This self-conception, in our modern research literature, is the nuclear matrix from which most basic attitudes, including sexual attitudes, are developed. Let us turn briefly to a discussion of such attitudes and their source in the individual's growing self-conception (*4*).

Attitudes may be defined as those basic tendencies to respond automatically to certain conditions, persons and things in terms of evaluative standards. Thus, we develop in the course of our careers a wide variety of attitudes in respect to the variegated clusters of interests comprising our lives. A significant feature of the development of attitudes towards a wide variety of human interests, ranging from political concerns to recreational matters, is that the attitudes characterizing special interests may fit into a coherent or congruent pattern, or they may be at sharp variance and in conflict in respect to specific fields of interest. Thus, a congressman, called upon to vote on a public health educational measure designed to make available information and treatment centers for the control of venereal disease, may, because of his Calvinistic background, vote against broader sexual education, despite a strong positive interest in the need to control communicable diseases.

In the growth and cultivation of our attitudes, we must likewise recognize two other important features, *viz.*, (1) that attitudes, even though they may be sharply delineated in respect to a specific area or problem, may, nevertheless, be integrally related to a series of inti-

mately related areas; and (2) that attitudes are fundamentally reflective of the self-conception of the individual, to which we refer, upon occasion, as the generic status (*4*). In the course of the individual's personality development, in which family-mediated cultural and class influences play conspicuous roles, the individual soon comes to identify himself with a fairly rigid concept of the meaning and the implications of his behavior. While this self-concept becomes broader and more complex as the individual acquires new experiences on advancing age-levels, certain elements within the self-concept remain fairly stable and impart a sense of continuity in the growth of the personality. It should likewise be recognized that the basic components of the individual's self-concept reflect early familial patterns and attitudes entertained towards the personality by others. An illustration of this may be given in the case of certain lower-class working families. In such families, where the male parent is frequently absent or missing from the home, early sexual attitudes tend to be extremely prurient in nature. The adolescent boy coming from such a home, thus, frequently experiences a strong sense of guilt in carrying on what may actually be extensive sexual activity. Thus, despite what is presumably an irresponsible and even licentious sexual code, such a youth may experience serious anxieties and doubts concerning his sexual behavior. This, in turn, may provide a difficult element in identifying a given case of venereal disease infection and may, at the same time, if the case be discovered, provide an effective basis for personal therapy.

Striking in this development is the way in which the self-concept determines the capacity of the individual to fulfill certain role-demands within given situations. Thus, the habit-patterns which the individual develops emanate directly from the individual's role-adjustments in a variety of basic situations, both formal and informal. Since attitudes represent conjoined clusters of such habits, two things may be noted in respect to sexual attitudes. Sexual attitudes consist of a number of fundamental and integrally related, although separate, habit patterns which result from the individual's role-performance in the family and peer-age groups. It is dubious whether religious and educational institutions play a significant role in the development of fundamental attitudes until a relatively high degree of social and emotional maturity has been attained, as well as a degree of sophistication. Such agencies tend rather to reinforce existent attitudes, some of which may have little to do with traditional moral proscriptions, or to promote attitudes which operate on an abstract level. We may summarize our position here by saying that the attitudes of the individual are closely related to his self-conception and that their conception reflects the diverse and contradictory attitudes of his immediate social milieu. In implanting the individual's self-conception, how the immediate environment regards deeply interpersonal relations and sexual behavior is extremely important.

Self Conception and Sexual Attitudes Can Be Identified With Certain Cultural Groups

In the current ideology regarding sexual behavior, we have a striking anomaly between what seems to have become a broadly patterned conception of latent values, and secondly, a wide variety of differences which reflect class, cultural, and even sectional variations. It is conceivable, as recent research evidence appears to suggest, that the self-conception which mirrors the basic attitudinal differences of class and culture may be identified with different cultural groups. Thus, despite similarities in cultural objectives, the character of the self-conceptions of the young Negro or Puerto Rican youth, for example, differs appreciably from that of the middle class suburban youth in respect to distinctive particulars. While the pervasive ideology concerning sexual behavior appears to transcend most groups, the ways in which individuals respond to such a common ideology is motivated in part, by differences in class attitudes. Thus, there are strong latent attitudes in the culture as a whole which appear to signalize a new view on sexual behavior, despite the traditional cultural morality. Conspicuous in the emergence of such a new sexual attitude are: the belief in the "rightness" of sexual relationships if there is evidence of affection and exclusiveness; the importance of the sexual experience in itself, regardless of its reproductive function; the recognition that sexual feeling is not wrong although some merit is still seen in the capacity of the female to draw the line at intercourse; and an increasing acceptance of single standards of morality. Paradoxically, the absence of inhibitory controls of the past, in the form of unwanted pregnancies and venereal disease, tends to contribute towards the development and reinforcement of such ideologies.

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Sexual Behavior and VD in Economically Depressed Groups With Distinctive "Female-Based" Family Patterns

Since public ideologies represent composite attitudes, the response to such a pattern of values is highly variable in accordance with class and culturally-processed points of view and self-conceptions. Thus, it is possible, it appears to me, to localize those areas of the culture which are more vulnerable to the demoralizing influences of sexual promiscuity, and some of its attendant problems. Among the several class groups which might be employed to demonstrate this point of view, let us focus briefly upon the so-called "female-based, serially polygamous" working class home, as described by the anthropologist, Walter B. Miller (*2*, *5*). While some difference exists as to whether such characteristics are universal among working class families, there can be little doubt concerning the presence of a large subcultural group in the United States, concentrated in our large urban centers, and distinguished by certain specific features. The characteristic value-patterns impinging upon the attitudes among the young in this widespread group play significant roles in determining the nature of sexual expression and the attitudes toward venereal disease and related problems.

Casual and Frequent Sexual Contacts. While referred to as "focal concerns," i.e., predominant interests among this selective and vulnerable group, the attitudinal patterns would tend to encourage early sexual experience with evidence of considerable anxiety concerning selected aspects of this early sexual experience. Thus, within this group, for example, there are strong compulsive elements towards the stress of masculinity, which is demonstrated by sexual success and prowess, and by acceptance of a role of "toughness" (*6*). Receptive to sexual attitudes which induce early sexual precocity and promiscuity is the fundamental self-conception which stresses the need, as Miller puts it, for excitement and self-mastery, and the desire for autonomy or freedom from constraint. Further, in the clearly articulated details of attitudinal needs generated by this cultural group is the acceptance of "trouble" as a part of the way of life. All of these components, resident in the self-image of the acculturated person, produce an atmosphere which is congenial to the furtherance of those casual and frequent sexual contacts whose byproducts are venereal disease and illegitimacy.

The presence of such attitudinal factors are strongly underscored in the recent illuminating studies by Louis Hochberg and Constance Grass of the work of a local health department in California among teenage venereal disease patients, and the splendid, intensive survey by Dr. Celia S. Deschin of 600 teenagers found in social hygiene clinics in New York City (*7*, *8*).

Homosexuality and Incest. Among this group characterized by prepotent masculine interests—characteristic of the women as well as the men—is a deeply involved attitude of misgiving concerning homosexual patterns, for example. Infectious sources of syphilis, thus, deriving from homosexual behavior or incest, are hidden and tend to remain unrevealed to the private physician. The result is that in certain specific instances, over 50 percent of early diagnosed syphilis stems from this source and is concealed because of the embarrassment and anxiety concerning attitudes towards deviant sexual practices (*1*). The identification of infectious sources is not nearly as difficult in the case of members of this group who have engaged in normal heterosexual contacts.

Effects of Family Breakdown. In the study by Hochberg and Grass, based upon intensive interviews with 30 patients in a public clinic, ranging in ages from 13 to 21 years, and supplemented with interviews with family members and associates, the character of the female-based home appears to be fairly well authenticated. According to the report, "twenty-three of the thirty patients had experienced family breakdown in the form of parental death, divorce or separation, mental illness, or alcoholism severe enough to warrant institutionalization." Significant among this group appear two types of potential venereal disease patients, characterized by distinctive attitudes towards sexual behavior and venereal disease. While both types, for example, find it difficult to attain middle class standards, and hence definitely reject them, one group engages in constant turmoil and conflict with legal authorities and community controls. It is common to find in this group strong peer-age associations and a similarity in sexual attitudes, accompanied by some anxiety and misgiving, but expressing itself in frequent sexual contacts with a common source. The second group has internalized certain middle class standards and values, with the result that the protest against society manifests itself in withdrawal from most peer-age groups and considerable in-

dulgence in alcohol, drugs, and sexual activity, some of which is of a deviant character.

Studies of Teenagers. An interesting feature of the Hochberg and Grass study is their discovery that in the majority of the Negro families of patients in this clinical survey, family relationships tend to be warm and fairly supportive. The result is that the attitudes of the young infected teenager were frequently guilt-laden while, at the same time, providing a basis for therapeutic assistance of a social work character as well as response to medical treatment.

In a particularly revealing section of Celia Deschin's study of 600 teenagers devoted to how the teenagers view themselves, considerable support is adduced to the views presented thus far. For example, it is significant that in response to the question, "If you were in trouble, to whom would you go?", the majority (62.7%) stated they would go to their parents. The fact that common matters of sexual knowledge are shared by both parents and their offspring can be seen in the fact that approximately three-fourths of the teenage group stated that their parents were aware of their sexual experience. It should be helpful, at this point, to understand the basis for this common knowledge as contrasted to those who stated that their parents did *not* know about their sexual experience. An assumption worth testing here is that many of the second group were more closely identified with middle-class values and hence did *not* reveal their behavior to their parents or were engaged in forms of sexual behavior which deviated from common patterns.

While the majority of Dr. Deschin's sample indicated considerable rapport with their parents, it is significant to note, however, that about two-thirds (64.0%) stated that their parents did not know they had been exposed to venereal disease. It would have been helpful to understand this seeming paradox by virtue of what appears otherwise to be a fairly substantial identification with the parents. It is conceivable that the reasons may stem from reluctance to admit to the parents of indulging in sexual behavior and attitudes which are antipathetic to the parents' attitudes and points of view. That the parents tacitly approve of behavior and attitudes which are generally contrary to accepted norms can be seen in the ready admission by substantial proportions of these teenagers that they pilfer and purloin small items of property and that they are truant in large percentage (79.4%) from school.

Of particular interest in this study is the question concerning attitudes towards sexual activity and religious beliefs. Over 70% stated that they felt there was no essential conflict between their religious beliefs and sexual behavior, suggesting the view that latent attitudes towards sex have quite definitely supplanted manifest, socioethical, traditional views. The absence of a strong sense of guilt concerning sexual behavior has likewise been revealed in a recent Community Council study in New York City where teenagers who become illegitimately pregnant conceal their pregnancy not so much out of guilt, but largely because of embarrassment, desire to complete the school year, or fear of being sent away (*9*).

Probably of most crucial significance to the present investigation of attitudes is the range in the answers of such teenagers as to whom they would most like to resemble when they grow up. This query comes closest to the germinal issue of the self-concept, from which so many of these attitudes stem. Unlike the responses to most of the other queries, in which definitive patterns could be formulated, the answers here were confused and contradictory, and provided only limited evidence to indicate clearcut aspiration levels. While contemporary youth may in general, irrespective of class background, reveal some confusion in respect to self-identity, there is ample reason to believe that the self-conceptions of middle-class youths are far more clearly articulated.

Summary

It appears fairly evident, on the basis of our analysis of attitudes, that the self-conception is basic in the determination of a variety of complex attitudes in respect to sexual behavior and the byproducts of such behavior. Secondly, it is also fairly apparent that such self-conceptions may be fairly well localized in certain subcultural groups. Thirdly, such groups, because of confused and contradictory attitudinal patterns, are more prone to yield high rates of venereal disease and illegitimacy than other groups. Fourthly, it appears quite conclusive that among marginal and economically depressed groups, characterized by distinctive "female-based" family patterns, the sources of sexual behavior and resultant venereal disease infection are not the same but stem from masculine-dominated sexual contacts and from certain deviant sexual sources. Lastly, the cluster of attitudes emanating from distinctive self-conceptions is so closely related to a variety of

profoundly-rooted personality patterns, that the identification and treatment of venereal disease provides us with an essential responsibility to deal with a series of economic, cultural, and personality problems to which such disorders are intimately related.

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Latent Factors in Attitudes Toward Venereal Disease

LEONORA BRON

ABSTRACT

Close observation of venereally infected patients seems to indicate that they are a somewhat unique group, so overwhelmed by a complex of personal and cultural problems that they do not act in their own best interests. Special attention will be directed to the following selected types of V.D. patients: the promiscuous female, the homosexual male, the clients of prostitutes, the psychopathic personality, and the normal male.

Promiscuous teenage girls long for a permanent attachment leading to marriage but lack skills to achieve this. Thus they become involved in transitory sexual affairs. These girls are immersed in narcissism, lack of self-esteem and anger.

Illegitimacy has been found to result in feelings of insecurity. Illegitimacy, broken homes or an overwhelmingly dominant parent are pertinent to homosexuality. Homosexuality is an assertion, a way of announcing loyalty to either parent. In one instance, in avoiding heterosexuality the males keep the pact of fealty with their mothers. On the other hand homosexual attachment might be motivated by an attachment to the father. Homosexuality can also be a disguised expression of hate.

The steady clients of prostitutes have been found to be insecure about themselves, hostile to the women they seduce, and fearful of demands that would be made on them by lasting attachments.

Psychopaths have been indirectly encouraged by their parents to act out antisocial behavior. Parents and patients are victorious in having hit back at society.

Normal people, unencumbered by unconscious attitudes and neurotic needs, will be free to relate to the disease realistically.

SOMMAIRE

Après avoir observé de près les malades atteints d'infections vénériennes on a l'impression qu'ils représentent un groupe quelque peu à part, tellement accablés par un complexe de problèmes personnels et culturels qu'ils sont incapables d'agir suivant leur propre intérêt. Nous allons étudier plus particulièrement les types suivants de malades vénériens: la femme portée à la promiscuité, l'homme homosexuel, les clients des prostituées, la personnalité psychopathique et l'homme normal.

Les adolescents portées à la promiscuité désirent vivement une liaison permanente qui mène au mariage, mais n'ont pas les qualités voulues pour y parvenir. C'est ainsi qu'elles se trouvent entraînées dans des liaisons sexuelles passagères. Ces jeunes filles sont en proie au narcissisme et à la colère; il leur manque le respect de soi-même.

On s'est rendu compte que l'illégitimité avait comme résultat un sentiment d'insécurité. L'illégitimité, les foyers brisés, un père ou une mère d'un caractère extrêmement dominateur, tout ceci touche à l'homosexualité. L'homosexualité est une façon d'affirmer sa loyauté envers l'un des parents. Dans un cas, en évitant l'hétérosexualité les hommes se montrent fidèles à leur mère. D'un autre côte, une liaison homosexuelle peut être motivée par de l'affection pour le père. L'homosexualité peut aussi être l'expression déguisée de la haine.

On s'est aperçu que les hommes qui font régulièrement visite aux prostituées ne sont pas sûrs d'eux-mêmes, se montrent hostiles envers les femmes qu'ils séduisent et craignent les obligations que leur imposeraient les liaisons durables.

Les psychopathes ont été indirectement encouragés par leurs parents à donner libre cours à leur conduite anti-sociale. Les malades et leurs parents se sentent victorieux lorsqu'ils réussissent à rendre à la société les coups qu'ils pensent qu'elle leur a portés.

Les gens normaux, libres de façons de voir inconscientes et de besoins nérrosés, pourront considérer la maladie telle qu'elle est.

RESUMEN

La atenta observación de los pacientes que sufren de enfermedades venéreas pueee indicar que éstos constituyen un grupo de caracteristicas hasta cierto punto singulares y que están tan abrumados por un conjunto de problemas personales y culturales que no siguen la linea de conducta que seria más provechosa para ellos. Se prestará especial ateneión a los siguientes grupos escogidos de pacientes de enfermedades venéreas: la mujer promiscua, el hombre homosexual, los elientes de las prostitutas, la persona psicópata y el hombre normal.

Las jóveues adolesecntes promiscuas buscan un cariño permanente que lleve al matrimonio, pero carecen de la habilidad para lograrlo y es entonces que se ven envueltas en relaciones sexuales de carácter transitorio. Esas jóvenes son vietimas del nareisismo, la carencia de estimación de sí mismas y la cólera.

Se ha podido observar que la ilegitimidad produce un sentimiento de inseguridad. La ilegitimidad, los hogares deshechos o un padre en extremo dominante son faetores basicos en el homosexualismo. El homosexualismo es una afirmación, un modo de mostrar

lealtad hacia cualquiera de los padres. Se da el caso que al evitar el héteroscxualismo, los hombres no buscan sino cumplir un paeto de fidelidad con sus madres. Por otra parte, una relación homoscxual puede ser el producto del afeeto hacia el padre. El homosexualismo puede asimismo ser una exprcsión encubierta de odio.

Se ha descubierto que los elientes habituales de las prostitutas se sienten inseguros de si mismos, hostiles hacia las mujeres a quienes seducen y temerosos de la responsabilidad que entrañaria una rclaeión más duradera.

Los psieópatas han sido alentados indirectamente por sus padres a tener una condueta antisocial. Tanto los padres eomo los paeientes se sienten victoriosos al poder vengarse de la sociedad.

Las personas normales, libres de las trabas de actitudes inconscientes y de necesidades neuróticas, están en posición de eonsiderar la enfermedad de modo realista.

CONVENTIONALLY, venereal disease programs offered patients diagnosis, treatment, and epidemiology. When the necessity for more effective control was conceived, the program expanded to lay education. The latent philosophy among professional groups in these educational campaigns was, "Give people the raw facts, then they will protect themselves." The informed public did alter their sex behavior in order to avoid the horrors of venereal disease. Why then did these diseases persist?

V.D. Patients—A Unique Group

Closer observation was made of the venereal disease patient. It soon became evident that the venereal disease patients were indeed a unique group, so overwhelmed by a complex of personal and cultural problems that they could not act in their own best interests. Their conflicts and emotional problems literally make it impossible for them to behave in their sexual life with psychological and medical discretion.

In this paper, special attention will be directed to selected types of V.D. patients. They are: the promiscuous female, the homosexual male, the clients of prostitutes, the psychopathic personality and the normal male.

The Promiscuous Female

Latent to the acquisition of venereal disease among promiscuous teenage girls is their longing for love. These girls desperately yearn for a permanent attachment which will lead to marriage, but lacking the skills to achieve this, they settle for whatever crumbs they can get. And so they become involved in transitory sexual affairs. Such amours are an inevitable abandonment. With consequent depression, and desire to flee from her loneliness the promiscuous girl turns for solace in the make believe world of another sexual embrace. The conclusion of this lovemaking is another abandonment, and so on, ad infinitum.

Reality seems painful for these girls, so they live as if their wishes were fact, even when reality screams back, refusing to be ignored. For instance, some of these promiscuous girls revealed their secret hope of becoming pregnant with any one of the boys with whom they are sexually involved because "then he might marry me." Yet part of them is aware that marriage is an impossibility, for they know these same boys have made other girls pregnant and simply walked out on them. Nonetheless, these girls continue to operate in accordance with hopes and wishes. Cautionary measures are thrown to the winds, and they continue to make themselves vulnerable for pregnancy.

Formerly, society believed that these young teenagers were promiscuous for the sheer hedonistic pleasure of gratification of sexual orgasm. Contrary to this, the professional world has discovered that most of the female teenagers experience limited, or even no physical pleasure. This is explained by the fact that females do not usually experience orgasm until their late twenties or early thirties.

However, it is doubtful if the promiscuous female patients will ever be able to relax and experience orgasm because they are too preoccupied with other thoughts. Running through their minds during the sex act are such questions as "Will he leave me? What does he really think of me?" Their thoughts reflect the characteristic narcissism, lack of self-esteem, and anger in which these girls are immersed.

Many of these girls have had unhappy childhoods, but they make their lives even more difficult by continuing to feel like waifs. They have no sense of identity or body image. It is as if they do not exist. Consequently they assume no responsibility for their own behavior. They are spared some of the discomforts of

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guilt by placing the responsibility on those who have caused them distress.

These girls usually have a close, but intensely hostile, relationship with their mothers. They exhaust themselves trying to please them, but they move away from home; intending to establish independence, they keep in close contact with their mothers, if only to taunt them. These girls look for warm, maternal substitutes in their boy friends and husbands, "someone to take care of me." Yet, contrary to their need to be taken care of, these girls are given to impulsive generosity. In this giving they feel vicarious pleasure. They are doing for others what they would like to have done for themselves.

But their generosity and sensitivity to other people's feelings are intermittent, because they are constantly battling with feelings of rage resulting from frustration. Because they are afraid of losing love, they do not openly complain and state their grievances. Yet sometimes their anger gets out in spite of themselves, but they do not know their hostility is so obvious.

During interviews this hostility is evident when they behave sarcastically, and make depreciating, caustic remarks. Yet, if asked to describe themselves, they will state they are thoughtful of other people's feelings, easily hurt and that other people use them. The attitude they have about themselves is that they are helpless. They do not realize they make other people, as well as themselves, their own victims—and they care less. Promiscuous girls in many instances are not likely to name sex partners for the epidemiologist, unless they have had a chance to ventilate their own feelings.

Broken Homes and Illegitimacy

In Sweden, a study of more than a thousand patients showed a marked difference between the male and female venereal disease patient. Whereas some 40 percent of the females came from childhood broken homes, this was true for only 11 percent of the males. Whereas males were often reared by the same persons through their childhood, females were shifted from one constellation of adults to another.

In some large urban areas, such as Philadelphia, it is anticipated that a somewhat different situation will exist. There may be more difficulty and complication in the lives of male patients than reported by the Swedish study. This is because the Philadelphia venereal disease clinic population is preponderantly Negro.

A study conducted of 7,000 American school children revealed that 46 percent of the Negro children were living in broken homes. The other American cultural groups included in the study showed nowhere near this high rate. A significant number of these Negro children were without natural parents because of abandonment, or illegitimacy. Transposing such findings to our preponderantly Negro clinic population, it is anticipated that there will be a high proportion of broken homes and illegitimate status in the lives of these clinic patients, both male and female.

What are some of the latent effects of illegitimate birth status? Under the best of substitute conditions, such as being reared by a really loving grandmother, illegitimate status is a hard situation with which to cope. In response to an attitude that has been expressed that Negro children do not experience the pain of their stigmata because "there are so many others like them," a comprehensive study was carried out. As expected, the study demonstrated that illegitimate Negro children show profound differences from their legitimate counterparts. Psychological tests indicated that the illegitimate children tried very hard to appear like their friends who were lucky enough to have both parents, but that inside they felt insecure. In their school work, they were not able to apply themselves to full effect because they were given to daydreaming.

Illegitimacy, broken homes or an overwhelmingly dominant parent are pertinent to a number of problems, one of which is homosexuality. This could account for the high rate of homosexuality in V.D. populations.

The Male Homosexual

In order to understand the latent attitudes of the venereal disease male homosexual, it is necessary to distinguish the homosexual personality from those who engage in a single homosexual act as an experimental part of their sexual outlet. Statistical surveys of the normal population indicate that a homosexual encounter is not an unusual occurrence in the boyhood or adult experiences of the males. However, our social mores still make this incompatible with a sense of well-being, so it is unlikely that the normal heterosexual males do not feel guilt when they are engaged in the homosexual act. Homosexual personalities, on the other

hand, cannot afford this guilt because it would be diametrically opposite to their very reasons for being homosexuals. This is not to say that they do not feel reluctance, for to be homosexuals in this country demands transgressing the barriers of propriety and accepting the humiliation that goes with this. But homosexuals are homosexuals because they have to be—they are compelled by their neuroses, over which they have no conscious control. Homosexuality is an assertion. It is an announcement of loyalty—or outrage—to either parent.

In one instance, homosexuality proclaims loyalty to the mother. Heterosexuality is avoided. Under such circumstances, to be discreet and conceal homosexuality would defeat the purpose, "for then mother might not know." This clarifies why so many homosexuals are blatantly promiscuous. They wish to avoid deep attachments with each other; thus they can often afford to cooperate in an epidemiologic survey.

In some instances, homosexual attachment might be motivated by an attachment to the father, rather than to the mother. Frequently in such instances the boy has secretly longed for a father he has never known. He seeks the symbolic union with a father in a homosexual relationship.

However, homosexuality can be a disguised expression of hate as well as love. The male's assumption of feminine gestures is so often a mockery of femininity. The mockery serves as a snickering commentary on his mother. The boy's latent anger towards his mother may be that he blames her for his father's absence. Such anger is usually covert, for on the surface he maintains a close or even indulging relationship with her. In his latent anger, the boy may be turning to males because he fears women as being emasculating.

However, the hatred in homosexuality can be toward the father as well. When this is so, homosexuality is often sadistic. Other males become symbolic of the father and the homosexual wreaks his vengeance and retribution on them.

The combination of love and hate factors as they precipitate and express themselves in homosexuality is infinite. These attitudes reflect in the interview situation. In the clinic, the image of the interviewer will vary according to the patient's need. The interviewer may represent a desired warm parent to one—and a cruel castigating menace to another.

Homosexuality is usually considered a psychiatric problem. In addition, a cultural connection is suggested in the high rate of homosexuality in the venereal disease patients. Primarily, this is because illegitimacy and broken homes are so prevalent in the particular Negro population which is seen in some of the venereal disease clinics. There are other latent factors that make homosexuality attractive. For example, there is the social stigma of being Negro, which deprives them of self-esteem. It is hypothesized that homosexuality may be one way of transcending the barrier into the white world.

Heterosexual Males and Clients of Prostitutes

A lack of self-esteem may show itself in the other selected types of V.D. patients, such as the "bravadoccio" facade of many promiscuous heterosexual males. This is borne out in the literature on sex offenders brought to the attention of the courts. On the surface it would appear that these are the most aggressive men sexually. However, investigation exposed the fact that these men are not usually aggressive. Their outbursts are sporadic and mostly ineffective. These men feel inadequate, unattractive and castrated.

Another group of seemingly aggressive men who suffer the same problem are the steady clients of prostitutes. One study confirmed the portrait of promiscuous males as those who are insecure about themselves, often hostile to the women they seduce, and who fear the demands that will be made on them by lasting attachments. For such men to have dependable relationships with their health center would be just as threatening as lasting relationships with anybody. They need to drop into the clinic as strangers.

Three distinct kinds of neurotics among venereal disease patients have been emphasized. They are the promiscuous female, the male homosexual and the promiscuous heterosexual male.

Psychopaths

A fourth significant group are the psychopaths. Psychopaths have been indirectly encouraged by their parents to act out antisocial behavior. Frequently, in contact with such parents one will receive lip service condemning the child's bad behavior, but a tone of parental pride can be detected. This will be a difficult group to work with because both parents and patients are flush with victory in having hit back at society.

Boys in this group of psychopaths have stated that their parents know and approve of their heterosexual exploits. Furthermore, when pregnancy occurs, these parents advise their sons to avoid the girl and ignore the situation. Thus these boys feel no responsibility in the sex act. Some boys, when questioned about their attitudes concerning contraceptives, thought it might be worthwhile considering for their own use as a precaution against venereal disease, but laughed at the idea of using them for the sake of protecting girls against pregnancy. More than one boy has said, "That's her lookout." Yet the girls with whom they are having coitus were only 13 or 14 years old.

Normal Persons Infected With V.D.

Aside from the neurotic and psychopathic personalities, attention should be directed to the group of normal individuals who acquire venereal disease by happenstance. These people will be easily detected in our venereal disease services by their attitudes to infection. Normal people unencumbered by neurotic needs and unconscious attitudes, will be free to relate to the disease realistically. These patients will be duly alarmed when told they have a venereal disease, and will be grateful for medical services. There will be some concern about personal reputation which may inhibit initial epidemiologic cooperation, but regard for sex partners should enable the normal, emotionally healthy person, to make some effort to overcome his initial reluctance and be of more assistance. In this group there are fewer sex partners. These patients will be familiar with names and addresses or at least know significant identifying information. Such persons are unlikely candidates for reinfections.

There is insufficient time to specifically discuss the parents of V.D. patients. It suffices to say that the problems of the parent and child closely feed on each other.

Need To Understand Latent Causes of V.D.

What about the latent factors in attitudes toward venereal disease of those responsible for the management of the venereally infected patient? What is morally felt and what is intellectually believed will determine what is done in venereal disease programs. Through self-examination, research of the literature and personal experience, an attitude must be cultivated that effective venereal disease control cannot come from public health personnel alone. Control must also come from within the patient. Once the latent causes of venereal disease are better understood, the result will be a more realistic venereal disease control program.

Wonder Drugs, Fear of Venereal Disease, Infection, and Sexual Contact

JOHN H. GAGNON

ABSTRACT

There has been some concern expressed that the introduction of wonder drugs as a treatment for venereal disease would produce increased sexual contacts. This notion is inferentially tested by a two-part analysis, the first part designed to see whether fear of venereal disease reduced incidence of infection or numbers of sexual contacts. The second part, based on other data, is directed toward determining whether there have been fundamental changes in premarital heterosexual behavior over the last 60 years. In general, it is found that fear of venereal disease does not effectively reduce incidence of infection or numbers of contacts, and that there have been moderate changes in premarital sexual behavior, primarily of females.

SOMMAIRE

On a exprimé une certaine inquiétude que l'introduction des médicaments miracles pour le traitement des maladies vénériennes n'ait comme résultat une augmentation des contacts sexuels. Cette idée est vérifiée par inférence en une analyse en deux parties. La première a pour objet de voir si la crainte des maladies vénériennes diminue la fréquence de la contamination ou le nombre des contacts sexuels. La seconde, basée sur d'autres données, a pour objet de déterminer s'il y a eu des changements fondamentaux dans le comportement hétérosexuel prénuptial au cours des 60 dernières années. Dans l'ensemble, on peut dire que la crainte des maladies vénériennes ne diminue pas de façon marquée la fréquence de la contamination ni le nombre des contacts, et qu'il y a eu certains changements dans le comportement sexuel prénuptial, surtout parmi les femmes.

RESUMEN

Se ha expresado cierta preocupación acerca de la introducción de las drogas maravillosas como tratamiento para las enfermedades venéreas ya que esto producirá un aumento en el contacto sexual. Este concepto es evaluado inferencialmente por un análisis de dos incisos. La primera parte designada a observar si el miedo a las enfermedades venéreas reduce la incidencia a la infección o al número de contactos sexuales. La segunda parte, basada en otro tipo de información, que es dirigida a determinar si han habido cambios fundamentales en la conducta premarital heterosexual durante los últimos 60 años. En general, se ha encontrado que el miedo a las enfermedades venéreas, no reduce, de una manera efectiva, la incidencia a la infección o número de contactos sexuales, y que no ha habido cambios moderados en la conducta sexual premarital de las mujeres.

SINCE THE GENERAL availability of an effective treatment for venereal disease there has been a massive reduction in its incidence, and while there has been a rebound since 1959, the disease no longer carries its former terrifying aspect. The clear-cut and fundamental reasons for the reduction observed between 1947 and 1958 in the civilian population have been the presence of a rapid treatment agent and case-finding programs pursued with vigor within major budgetary restrictions. Though this decline in the disease has been widely applauded, there are those who see in the moderate rebound since 1959 the seeds of a new epidemic. The logic of this view proceeds as follows: Venereal disease was and is a powerful deterrent to sexual contact, and if not eliminating nonmarital coitus, it at least serves to reduce both the incidence of such coitus and the number of sexual partners. Without this deterrent effect it is felt there will be a widespread increase in the incidence and frequency of nonmarital sexual contacts as well as in the numbers of sexual partners, and even though cure is available the spread of the disease may be faster than the available manpower to control it.[1]

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[1] These fears may be realized if strains of antibiotic resistant organisms begin to occur frequently, for a necessary half of an effective control apparatus will be missing: a rapid, effective treatment agent.

A second feared consequence of the presence of an effective curative agent for venereal disease, and perhaps more fundamental than the fear of increased amounts of disease, is the feeling that promiscuity is a natural consequence of lack of fear of the disease. While fewer persons would put their apprehensions this way today, there is a point of view as recently expressed as 1935 which "far from considering syphilis an evil regarded it, on the contrary as a blessing. Could disease be exterminated . . . fornication would ride rampant through the land" (*1*). It is important to focus upon this feeling which suggests that large amounts of libido are held in check only through the fear of immediate malign consequences of sexual behavior, for there are two untested hypotheses underlying it. One is that sudden alterations may occur in the sexual behavior of adult individuals as a consequence of rapid changes in the supposed controls surrounding sexuality. Thus it is thought that the very presence or absence of the sulfa drugs or penicillin will substantially reshape the sexual behavior of mature persons. Secondly, there is the subsidiary notion that fear of the negative consequences of sexual activity is the most basic deterrent to such behavior.

These hypotheses may be tested, inferentially at least, through the use of data gathered by the staff of the Institute for Sex Research. This test must be inferential rather than direct because of the lack of sufficient sexual histories for the period 1950 to date. The hypothesis that the presence of wonder drugs substantially reduces fear of venereal disease and therefore increases sexual contact would be best tested by an appropriate study of pre-wonder drug and post-wonder drug populations. It is the data on this latter group which is lacking.

Even without this complete design, data are available which make it possible to examine whether fear of venereal disease is related to incidence of infection, incidence of premarital coitus with either prostitutes or nonpaid companions, or to the number of such sexual partners. These data will be restricted to males whose premarital lives occurred prior to 1940. Thus all infections reported are pre-wonder drug and premarital, as are all of the data on sexuality and attitudes. Through the use of still other data arranged by decade of birth it is possible to see if any fundamental changes have taken place in the incidences and frequencies of certain types of sexual behavior. While not testing specifically the impact of wonder drugs, these latter data bear upon the problem of how far and fast our sexual practices have changed.

Attitudes, Infection and Sexual Behavior

The cases which will be examined relative to attitudes, infection, and sexual behavior are those that were gathered specifically for the study of the sex offender and other delinquent populations.[2] As a control group for this research, sexual histories of nondelinquent persons of the same social level were also collected. These data have been gathered on both whites and Negroes, but only the data on whites will be dealt with here. Since these populations at the lower social levels are the ones in which the bulk of venereal disease infection is found, it is their patterns which are the most fruitful to examine.

The various populations which are available for examination of the relationships between attitudes, infection, and sexual behavior are sex offenders, prisoners, and lower social level nondelinquents. The three groups are defined in the following way. Sex offenders are persons convicted of at least one criminal offense, recognized as involving sexual gratification and publicly known as a sex crime.[3] Prisoners are those persons with histories of imprisonment resulting from nonsexual criminality. And finally, the nondelinquent groups are composed of those persons who have never been convicted of either sex offenses or nonsex offenses who represent, from this point of view, the "normal" person at the lower social level.

As might be expected, there are vast differences in the reported incidence of infection (including both gonorrhea and syphilis) among these groups.[4] While only 16% of the nondelinquent group report ever having been infected, one third (33%) of the sex offenders and more than one third (37%) of the prison group report such experience.

The subjects in the study were all asked how much they were restrained from premarital coitus by the fear of contracting a venereal disease. This question was asked in conjunction with a series of questions on the kinds of restraints which held them back from any or

[2] The complete study is to be published in 1963.

[3] The public element in the definition eliminates such offenders as arsonists who may have covert sexual motives.

[4] It should be made clear that not all reports, especially of gonorrhea, are indeed the disease. Various other conditions may evince the same symptomatology. It is hoped that the error is distributed randomly among the various groups.

from increased premarital sexual activity. These responses are classified into three types: no restraining effect, moderate restraint, and strong restraint from this source. One question asked in this series focused on whether feelings of morality (i.e., the belief that premarital coitus was intrinsically wrong) restrained the subject from such intercourse. The effect of this type of restraint will be compared with the restraining effect of the fear of venereal disease. Sexual restraint based on the belief that premarital coitus is morally wrong was included in this examination because it represents a long-term internalized belief or a positive restraint rather than a simple negative response to feared immediate consequences.[5]

Incidence of Infection

For the nondelinquents and for the sex offenders there was essentially no difference in the reported incidence of infection regardless of how strongly they said they were restrained from sexual activity by fear of disease (Table 1). For the prisoners there was some reduction in infection for those who reported that fear of the disease restrained them from sexual activity.

Thus fear of venereal disease shows no systematic reduction in actual incidence of infection among males who reported that it played a serious role in preventing them from having increased amounts of premarital intercourse.

When one compares the fear of venereal disease and moral restraint and their respective impacts on incidence of infection, it is clear that the belief that premarital coitus was wrong had a greater effect than the fear of contracting the disease. While for all of the groups these reductions were not great, they still existed. For the prisoners the reductions from this type of restraint were equal to those resulting from fear of the disease, while for the other two groups moral restraint had a larger effect.

While fear of venereal disease does not reduce incidence of infection, it is reported more commonly as a restraint than are moral considerations. Only among the uninfected nondelinquents does the proportion who reported moral inhibition of premarital coitus exceed the proportion who reported fear of the disease (Table 2).

In general there are few differences between the infected and uninfected portions of the groups in terms of the proportion reporting no fear of disease. There are some differences between the groups, however, with one-half of the nondelinquents reporting no such restraint; two-thirds of the prisoners and sex offenders reported in the same manner. This pattern suggests that presence or absence of infection has little relationship to expressed fears of venereal disease in these populations.

In contrast to the lack of difference in reported fear of disease between the infected and noninfected groups, moral restraint is more likely to play a role among uninfected persons. Among the uninfected nondelinquents and sex offenders there is a greater number of persons reporting moral restraint than among their infected peers. This does not occur among the prisoners.

Table 1. Percent ever infected with a venereal disease, by type and degree of restraint

Type of restraint	Degree of restraint	Percent ever infected with venereal disease					
		Nondelinquents		Prisoners		Sex offenders	
		Percent	Number[1]	Percent	Number	Percent	Number
Moral	None	22. 0	(223)	38. 4	(638)	38. 6	(361)
	Moderate	13. 1	(84)	33. 9	(127)	40. 1	(192)
	Strong	10. 1	(151)	29. 6	(108)	26. 3	(293)
Fear of venereal disease	None	15. 4	(253)	39. 0	(555)	36. 1	(845)
	Moderate	20. 8	(101)	33. 6	(169)	33. 8	(278)
	Strong	15. 3	(98)	30. 6	(144)	35. 8	(218)

[1] Total number in parentheses.

[5] The comparative incidence of these two restraints for females may be found in Reference (2), Kinsey, A. C., *et al.*: Sexual Behavior in the Human Female, pages 314–315.

Table 2. Levels of restraint among noninfected and infected males

	Nondelinquents		Prisoners		Sex offenders	
	Infected	Not infected	Infected	Not infected	Infected	Not infected
Moral restraint:						
None	65. 2	45. 4	76. 6	71. 1	70. 2	61. 3
Moderate	14. 6	19. 1	13. 5	15. 2	14. 2	13. 3
Strong	20. 0	35. 5	10. 1	13. 7	15. 6	25. 4
Number	(75)	(383)	(320)	(553)	(473)	(863)
Unknown	(0)	(3)	(1)	(4)	(4)	(12)
Fear of disease:						
None	51. 9	56. 7	68. 1	61. 4	63. 8	62. 5
Moderate	27. 9	21. 2	17. 9	20. 3	19. 8	21. 2
Strong	20. 0	22. 0	13. 8	18. 1	16. 4	16. 2
Number	(75)	(387)	(318)	(551)	(475)	(866)
Unknown	(0)	(9)	(3)	(6)	(2)	(9)

Incidence of Premarital Coitus

Having examined our two types of restraint and their impact on the incidence of infection, there is the second task of examining whether these restraints reduce the incidence of premarital coitus either with prostitutes or nonpaid companions (Table 3). When one examines fear of venereal disease as a restraint on premarital coitus with companions the picture is quite equivocal. Among the uninfected portion of these groups the most effect occurs among the nondelinquents, while the least occurs among the prisoners. The situation with prostitutes is more or less the same, with the total nondelinquent group reporting a slightly smaller incidence of paid premarital coitus. In all cases the incidence of contact with prostitutes is substantially smaller than the incidence of contact with nonpaid companions.

Among these same uninfected persons moral restraint is a far more significant variable than

Table 3. Percent with premarital coitus, by type of partner, type and degree of restraint

Type of partner	Type of restraint	Degree of restraint	Nondelinquents		Prisoners		Sex Offenders	
			Non-infected	Infected	Non-infected	Infected	Non-infected	Infected
Nonpaid companion	Moral	None	85. 7(174)		92. 9(393)		85. 1(528)	
		Moderate	85. 0 (73)		87. 0 (84)		82. 7(115)	
		Strong	47. 1(136)		60. 6 (76)		62. 6(219)	
		Total	71. 9(383)	94. 7(75)	87. 6(553)	96. 6(320)	79. 1(863)	87. 8(473)
	Fear of venereal disease	None	73. 9(214)		85. 3(339)		76. 9(540)	
		Moderate	77. 5 (80)		97. 4(112)		88. 1(184)	
		Strong	63. 9 (83)		85. 0(100)		75. 0(140)	
		Total	72. 5(377)	94. 9(75)	87. 7(551)	96. 4(318)	79. 0(866)	87. 2(475)
Prostitute	Moral	None	51. 2(174)		56. 3(393)		58. 1(529)	
		Moderate	48. 0 (73)		62. 0 (84)		54. 8(115)	
		Strong	26. 5(136)		27. 7 (76)		34. 3(219)	
		Total	41. 8(383)	90. 7(75)	53. 1(553)	75. 7(320)	51. 7(864)	65. 4(473)
	Fear of venereal disease	None	40. 7(214)		50. 2(339)		49. 4(541)	
		Moderate	51. 3 (80)		65. 2(112)		59. 3(184)	
		Strong	38. 6 (83)		49. 0(100)		50. 8(140)	
		Total	42. 5(377)	90. 7(75)	53. 0(551)	75. 8(318)	51. 8(866)	65. 1(475)

is fear of disease. While there is little difference in the incidence of premarital coitus for those who report no or moderate moral restraint from such intercourse, those who report strong objections have a substantially smaller incidence of premarital coitus. One-half of the nondelinquents who reported strong objections to premarital coitus on moral grounds report no such coitus, and this figure is only a little less than 40% for both the prisoners and the sex offenders (Table 3). This same impact occurs in contacts with prostitutes. Though the reductions are not as regular, those who report strong moral objections clearly have a lower incidence of contact with prostitutes than those who report only moderate or no such objections. In all cases those reporting strong moral feelings about premarital intercourse have a lower incidence of premarital coitus than those who report a strong fear of venereal disease.

For those who were infected there are very little differences observed in the incidence of premarital coitus with companions between the various groups. For prostitute contacts both the prisoners and the sex offenders report a substantially smaller incidence than do the nondelinquents. It may well be that those nondelinquents who contracted venereal disease are those who find prostitutes more psychologically congenial than nonpaid companions. Also the delinquent groups may have had access to more promiscuous nonprostitute females.

From these data it would appear that moral restraint seems to produce a substantial reduction in the incidence of premarital coitus with both prostitutes and companions. While these reductions are not as distinct there is, in addition, a reduction in incidence which results from fear of the disease.

Number of Sexual Partners

An additional vital factor, both in terms of getting infected and in terms of spreading the infection, is the number of sexual partners a male accumulates. It is important to find out whether, among those males who do have premarital intercourse (and they are the vast majority), the restraints on such coitus had an effect on numbers of coital partners (Table 4). For restraint based on moral objections such is the case. Moral restraint is related to decreased numbers of nonpaid companions among all the groups whether or not the persons involved are infected. The infected persons always have more companions than the noninfected, as might be expected, but even so, among the infected those who report greater moral restraint also report fewer partners. Tentatively the same pattern may be reported among those with coitus with prostitutes, but the pattern is not nearly as straightforward.

Although there were some minor reductions in the incidence of premarital coitus with both prostitutes and companions associated with the fear of venereal disease, there is no pattern of a

Table 4. Active [1] median number of sexual partners, by type of partner and type and degree of restraint

Type of partner	Type of restraint	Degree of restraint	Nondelinquents		Prisoners		Sex offenders	
			Infected	Noninfected	Infected	Noninfected	Infected	Noninfected
Nonpaid companion	Moral	None	24.4	11.1	38.3	17.2	17.1	14.1
		Moderate	13.5	5.0	32.0	12.2	12.2	11.2
		Strong	5.2	4.0	7.2	3.6	5.6	3.8
	Fear of venereal disease	None	32.4	5.6	34.0	13.6	15.6	5.9
		Moderate	7.1	12.6	45.0	19.1	15.5	10.4
		Strong	18.5	3.8	17.0	11.8	8.8	10.6
Prostitute	Moral	None	35.8	7.0	13.7	3.2	17.0	10.4
		Moderate	15.4	8.5	18.8	5.7	14.6	6.3
		Strong	6.0	4.6	8.1	4.8	12.0	5.7
	Fear of venereal disease	None	18.5	6.4	16.4	5.5	12.3	7.8
		Moderate	33.0	9.2	17.2	8.2	20.5	11.8
		Strong	21.0	5.6	16.7	5.0	48.5	9.5

[1] Active sample includes those males who had the experience, i.e., coitus with a prostitute or nonpaid companion.

smaller number of partners reported by the more fearful males.

While the central interest here is the relationship between reported restraint and its consequent effects on disease and sexual contact, it is quite clear from these data that the nondelinquent members of this social level have considerably less contact and infection than do their delinquent and sex offender peers. The prison group is the most infected and the most promiscuous.

The groups with the largest median numbers of partners are exactly those groups with the largest incidences of infection. While the specific mechanisms of control remain obscure, it may be suggested from the data that moral restraint is a more effective control over large numbers of sexual partners than is simple fear of venereal disease.

Fear of the disease does not seem to operate very effectively either in reducing the incidence of infection or in reducing the number of coital partners, but it does have some effect in reducing the incidence of premarital intercourse. For some populations it is a more frequently reported restraint on premarital coitus than the belief that the behavior is wrong, but given its observed lack of effectiveness its only consequence may be anxiety rather than a reduction in incidence of infection or a limiting of spread.

Having pointed out, at least for this population and for the disease contracted prior to the widespread use of penicillin, the minimum role played by fear of the disease in restricting the disease's incidence, we may now turn to the question of whether or not there have been major changes in the heterosexual behavior of persons born in different time periods.

This question may be generally tested by calculations derived from the populations used in the volumes, *Sexual Behavior in the Human Male* (*3*) and *Sexual Behavior in the Human Female* (*2*). The persons from these populations can be divided into their decades of birth and we may assess whether the behavior of individuals born and raised in different periods of time will substantially differ. This may be done for both males and females, and while not testing the central problem, it will shed light on the rates of change. The period covered includes a major depression, a world war, and a variety of other changes (including the full impact of the work of Sigmund Freud), and so one might be prepared to predict on the basis of common sense rather substantial differences.

Changes in Premarital Heterosexual Behavior During Last 60 Years

When comparisons are made between the case histories of those males born between 1880 and 1909 and those of males born between 1910 and 1929 one can find some differences of varying significance in their overt sexual activity.[6] The experience of premarital intercourse may occur one year earlier for a population with a social level similar to the populations referred to earlier in the paper, but it does not involve any larger proportion of the population. However, the frequencies of such behavior are substantially higher for our younger generation grade school group and somewhat higher for those younger males with high school educations. For college-educated persons there is some lowering of age at first experience, but no substantial change in the frequency of the experience. For coitus with prostitutes prior to marriage there is clearly a lower frequency of this experience, and it occurs later in life for men of both grade school and high school educations born after 1910 when compared with males born prior to that date. For men of college education there appears to be no difference between those born earlier and those born later in incidence of experience with prostitutes, but there is some reduction in frequency of experience.

If we turn now to the females, one finds that there are substantial differences in the incidences of premarital coitus for women born before 1900 and for women born after that date. While women born before 1900 report only 14% experiencing premarital intercourse by age 25, women born in the successive decades after 1900 report from 36 to 39 percent with such experience (*2*). The persons among whom some differences should appear are those females born between 1920 to 1929. In 1947 women born in that period were between 18 and 27 years of age. Yet one can find no difference between their premarital sexual lives and those of women who had been born 20 years earlier. In general these reported increases for females in our data conform with those of other studies (*4*, *5*). There has been only a minor increase in the number of partners, and for one half of the females who reported premarital intercourse this experience occurred only with the fiancés (*2*). The major changes in the patterns of sexual behavior of females apparently occurred between 1916 and 1930, 17 years before the

[6] Previously unpublished corrections of data published in Reference (*3*), Kinsey, A. C., *et al.*: Sexual Behavior in the Human Male, pages 314–417.

general introduction of penicillin into the treatment of venereal disease. Even though these changes occurred earlier they are related to the increase in venereal infections for nonpaid contacts as against prostitutes.

The changes in overt heterosexual activity have been in the direction of increasingly frequent experience with nonpaid companions for lower social level males, but with a not much greater proportion of the population. No major changes seem to have occurred in the college population during this period. Among females the correlative changes have been taking place with increased incidences of premarital coitus. These increases are less than the decreases in male experience with prostitutes.

The bulk of these changes occurred prior to the Second World War, and as of this moment there are insufficient cases in the sample to clarify the impact of the last 20 years in sexual conduct, especially of younger persons. There is some confidence that there will not be large changes in the middle of adult lifetimes, but the impact on youth is certainly unclear.

Conclusions

Having first looked at the relationships between fear of venereal disease and the incidence of infection and numbers of sexual partners, it is clear that fear has not the control which people thought it had. One of the factors which strengthens this conclusion is that the reported infections occurred when the cure of venereal disease was neither swift nor sure, and facing these kinds of dangers the males in the sample show no systematic reduction in sexual contact because of their fear of contracting the disease. This is especially true of the delinquent subgroups. While this is only an inferential test for the specific hypothesis, it might serve to guide a more appropriately designed research study.

There is, in addition, no evidence that there has been a major revolution in overt sexual behavior in our society over the last sixty years. While there may be some differences as a result of the Second World War, and our decade-of-birth data is at this point not sufficiently complete to demonstrate this in either direction, previous experience would lead to severe doubts about whether any radical changes have, in fact, occurred.

The balance wheel of human behavior is usually well insulated from certain proximate shocks. There are strong limits placed on the frequencies and forms of sexual behavior by experiences in the family during childhood and adolescence. One may only note the impact of early and lasting religious training in this regard. It is possible that children whose parents' sexual lives have been lived free of the fear of venereal disease may have less anxiety about sexuality and therefore greater premarital experience, but major changes should not be expected for adults.

The Director of the then American Social Hygiene Association at its 1948 symposia on the volume *Sexual Behavior in the Human Male* suggested that "Great changes in human behavior and in the related mores, laws, and social institutions occur only gradually and over a long period of time" (*6*). While this statement was made in the context of explaining the problems facing the attempt to plan rationally for the improvement of man, it may well be taken as a guideline for those who think that small events may sway, usually for the worse, fundamental human processes. It is quite true that the human condition does change and that men do not behave now as they used to, but if by focusing on ephemeral events there is a failure to examine the origins of consistency and change in human behavior, the result will be confusion rather than order.

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Male Homosexual Life Styles and Venereal Disease

EVELYN HOOKER, Ph.D.

ABSTRACT

Characteristics of varied life styles of male homosexuals in a large urban community and the norms governing sexual behavior in varying sectors of the homosexual "world" are described. A comparison is made of characteristics of a group of 253 males infected with syphilis, and a group of 90 men, only three of whom have known syphilitic infection. Five factors possibly contributing to the high incidence of infectious syphilis among male homosexuals are examined: promiscuity, social categories of persons involved, location of contact, chronological age, and form of sexual preference and practice. Of these, only chronological age and form of sexual practice show a clear relationship, although probably all are involved. The bulk of infectious syphilis occurs in the young male (below 30), white collar or professional in occupation, who is highly promiscuous, and sexually versatile.

SOMMAIRE

Il est question des traits caractéristiques des divers genres de vie des homosexuels du sexe mâle dans un grand centre urbain, et des normes qui gouvernent le comportement sexuel dans divers secteurs du "monde" des homosexuels. On fait une comparaison entre les traits caractéristiques d'un groupe de 253 hommes atteints de syphilis infectieuse, et un groupe de 90 hommes dont seulement trois ont connu une infection syphilitique. On examine ensuite cinq facteurs qui contribuent probablement à la grande fréquence de la syphilis infectieuse parmi les homosexuels du sexe mâle: la promiscuité, les catégories sociales des personnes en question, les lieux de contact, l'âge chronologique et les formes de préférence sexuelle et pratiques sexuelles. De ces facteurs, seul l'âge chronologique et les formes de pratique sexuelle montrent un rapport net, bien que probablement ils aient tous quelque chose à contribuer. Le plus grand nombre des cas de syphilis infectieuse se rencontrent chez le jeune homme (moins de 30 ans), employé de bureau ou ayant une profession libérale, extrêmement enclin à la promiscuité et qui se livre à des pratiques sexuelles variées.

RESUMEN

Se describen aquí las características de las diversas modalidades de vida de los homosexuales masculinos en una gran ciudad y las normas que rigen la conducta sexual en los diversos sectores del "mundo" homosexual. Se presenta una comparación entre las características de un grupo de 253 hombres afectados por la sífilis y un grupo de 90 hombres, de los cuales solamente tres se sabe que sufren de sífilis. Se examinan cinco factores que posiblemente contribuyen a la alta incidencia de la sífilis infecciosa entre los hombres homosexuales: la promiscuidad, la clase social de las personas afectadas, la ubicación del contacto, la edad cronológica y la modalidad de la preferencia o práctica sexual. De éstos, solamente se ha podido establecer una relación evidente entre la edad cronológica y el tipo de práctica sexual, aunque probablemente todos están relacionados. La mayoría de los casos de sífilis infecciosa ocurren en hombre joven (menores 30 años), oficinistas o profesionales, muy promiscuos y sexualmente inconstantes.

SINCE 1954, I have been engaged in a social-psychological study of male homosexuality in the city of Los Angeles (*1*, *2*). The objectives of the study are to chart the many developmental routes by which males travel to adult self-identification as homosexuals; to describe the diverse patterns of personality structure and social behavior which characterize these men as adults; and to describe the homosexual world, or community, which helps to determine important aspects of adult life styles for many homosexuals in large urban centers. The data have been obtained from intensive and repeated interviews and psychological tests with a core group of 30 men, from additional interviews with members of representative sectors of that world, and from observations of behavior in a wide variety of social settings. The problem of V.D. is tangential to the primary objectives of the research, and questions concerning infection have been included in interviews only since 1959, when the high incidence in the homosexual population was first brought to my attention.

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General Characteristics of Life Styles

The term "life style" is broad in meaning. It refers not only to standards of interpersonal relations and sexual morality but to occupation and location of residence, standards of taste in reading, home furnishings and decoration, speech and gesture, political opinion and activity, use of leisure, and much more. Homosexual life styles, with respect to these matters, are extraordinarily diverse. Every possible kind of occupation, speech and gesture, esthetic taste, and body build, for example, is represented among homosexuals. Only a small minority are "obvious." For the majority, the secret is revealed only at their discretion, and such a disclosure is frequently the occasion of great surprise—even to other homosexuals. The social deviance of most homosexuals is not generalized, and "passing" in the presence of outsiders is a common feature of the strategies employed to avoid the legal, social, and economic sanctions which can be invoked if their sexual identity becomes known.

For some, the seeking of sexual contacts with other males is an activity which is isolated from all other aspects of their lives. It may be episodic in character, or a regularly recurring act, but in either case, the homosexuality is limited to sexual activity alone. For others, the search is a two-fold one, not only for sexual partners but for other persons who share their particular form of sexual preference and with whom problems can be shared, pleasures of the in-group enjoyed, and effects of the social stigma reduced. The search is soon rewarded by the discovery that the number of those who are engaged in a similar enterprise is very large. It should be recalled that the Kinsey estimate (*3*) of 4% of the white male population as being exclusively homosexual throughout their lives would give an approximate figure of 26,631, age 20 or over, in Los Angeles, on the basis of the 1960 census. The search is also rewarded by the discovery of a homosexual "world," an extended series of overlapping networks of friendship-clique structures and widening circles of persons who recognize the social identity of others in the circle even if the personal identity is concealed.

The activities in public institutions such as the "gay" (i.e., homosexual) bar assume special importance, because the initiate soon acquires a body of knowledge which includes a set of common understandings which function in effect as norms governing homosexual behavior: sex can be had without obligation or commitment; it is a meeting of strangers, and the too familiar face does not "make out" in the sexual market; one cannot afford to be seen too frequently in one place or one is counted out of the cruising—that is, sexual competition—after the initial newcomer phase; success in the sexual market will be increased by masculine appearance and youth; life in the bars, for sexual activities, is time-limited; older persons may have to pay for partners. With this body of knowledge he also learns the special language, ways of recognizing vice squad officers, varieties of sexual acts and social types, and justifications for the homosexual way of life as being legitimate, with norms of sexual behavior in which the "one-night-stand" is a standardized expectation and monogamous fidelity to the partner is rare. Gay bars tend to specialize in particular clientele of the gay world, and a bar may develop its own norms of social interaction. For example, clientele in one bar, who prefer a more friendly atmosphere, which social introductions may promote, refer to another and more "cruisey" bar as being one in which persons introducing themselves are told, "No, no, don't tell me your name—I never have sex with friends." The standardized expectation of the one-night-stand is not limited to encounters which occur in bars but includes other places, as well: the bath, the park, the beach, the gay street, and the all-night market—to name but a few.

The gay world of the one-night-stand and the competitive sexual market in which youth and appearance have high value is the more visible sector of that world. More hidden is the world of the private clique structure of friends or homosexually "married" pairs who seek to establish more permanent relations and avoid the strains placed on the relationship by their appearance in the market place. In this hidden world, the sexual aspect of life is more often placed in the perspective of long-range goals, such as work and the enjoyment of other forms of leisure activity which are more generically re-creative. The separation of intellectual and emotional intimacy or love from sexuality, which is characteristic of the gay life in its more visible form—the bars, streets, baths—occurs less often in this hidden world.

The round-of-life, or style, of the homosexual in the gay world thus depends on a large number of factors, including his age, his personal attractiveness, his biography in that world, the sector of that world to which he gains access, and his success in finding a partner with whom sexual and emotional intimacy can be established on a long-term basis. The search for

such relationships is a constant one and frequently successful for periods ranging from a few months to many years or a lifetime. The life styles of such pairs is greatly varied, but involves a pattern of domestic arrangements, including a sexual-agreement, which may be revised periodically. Only a few pairs of those interviewed are sexually monogamous for the duration of the relationship, if it continues beyond a year, although, in most instances, the number of extra-pair sexual encounters will be greatly reduced. Sexual fidelity as the criterion of enduring affection and love is supported by the legal structure in the heterosexual world but not in the homosexual world. In the absence of such support, it is not surprising that the criteria vary. It should be noted, however, that the strains against monogamy are greatest if the pair establishes wide social contacts in the gay world. Completely monogamous pairs tend, therefore, to restrict their social contacts with the gay world. My chances of interviewing them are reduced because I depend largely on contacts with that world in arranging research interviews.

Incidence of Venereal Disease

Although this account of some typical arrangements in the homosexual world is greatly abbreviated, it gives ground for the expectation that in some sectors of that world the probability of venereal infection may be high. Since the social phenomenon termed the homosexual, or "gay" world is not new—although more widely recognized in the last decade—the question arises as to whether the occurrence of V.D. in members of that world is also an old story, or is the result of a fairly recent epidemic. Available data do not afford an answer. Since 1955 (*4*), evidence is accumulating to show that sexual relations between males contribute substantially to the total incidence and spread of venereal infection in urban centers in the Western World. The proportion of the total reported incidence in males attributed to the homosexual male varies in published studies [1] from 10% (*5*) to 77% (*6*). Unfortunately, the incidence figures given in these studies are not comparable, since the criteria for homosexuality vary, as well as the types of venereal infection included. There can be little doubt that the problem is a serious one, as indicated by the 1962 Joint Statement (*7*) that "33 states and 64 cities stated this year that homosexual activity was contributing to an increasing percentage of V.D. cases—a sharp increase over the response to last year's questionnaire, when 6 states and 16 cities cited homosexuals as a group which created special demands on the V.D. program."

Los Angeles is one of the 64 cities in the United States in which venereal disease among homosexuals, particularly syphilis, has become a serious health problem. In that city, a sharp rise in primary and secondary syphilis was noted in homosexual males in 1959 (*8*, *6*). In that year, according to data supplied by the City Health Department, 159 males with primary or secondary syphilis responded to a contact interview. Eighty-nine men, constituting 56% of all infected males, named male contacts exclusively, within the critical period within which they could have acquired or transmitted the infection. In 1960, 77%, or 324 out of 419 males, named only male contacts. In 1961 there was a considerable decrease, since 253, or exactly 50% of the 506 male patients who responded to contact interview, named male partners exclusively. However, in one health district of the city with known concentrations of public institutions and residential areas in which overt homosexuals tend to congregate, those naming male contacts exclusively account for 86% of the total number of reported cases of males infected with primary or secondary syphilis.

An examination of additional data concerning this group of 253 men, supplied by the contact interviewers at the City Health Department, is instructive. The contact index for the exclusively homosexual group as a whole was 5.3, which is only slightly greater than the index of 4.6 for the heterosexual group. For both groups the age peak appears between 20 to 24, with a precipitous drop occurring after age 35. At the time of the interviews, 96% of the homosexual group were employed, whereas only 44.7% of the heterosexual group were employed. One of the sharpest contrasts between the two groups is provided by an analysis of occupation. Only 7% of the heterosexual group who were employed belonged to the white-collar classification, and the bulk are found in unskilled labor. Of the homosexuals, 77% were in professional or white-collar jobs. This finding is further corroborated by the fact that 95.7% of the homosexual group had completed high school and 22.5% had attended or completed college, whereas only 36% of the hetero-

[1] An excellent bibliography of these studies is to be found in the 1962 article by Tarr listed in the references for this paper. They are not reviewed here because of time and space limitations.

sexual group had completed high school and 3% had attended or completed college.

From these data the conclusion seems justified that primary and secondary syphilis among overt homosexuals cannot be attributed to a small minority, such as male prostitutes, who constitute only 2.4% of the total. This agrees with the finding reported by Jefferiss (*5*), that in London the majority of homosexuals with V.D. are "amateurs," not male prostitutes. Only two men had been married. No evidence of bi-sexuality was obtained in the contact interviews. It is of interest that 28.5% (72 men) of the group were living *en menage*, and 16.6% owned their own homes. The sexual preferences and patterns of the group are of considerable interest, in view of the widespread belief, both in the homosexual world and among medical personnel, that there is a significant relation between the form of homosexual practice and venereal disease. Only 14, or 5.5%, admitted to the practice of fellatio within the critical period. Without exception all admitted to sodomy (anal intercourse) as their predominant sexual preference. A further analysis shows that a majority, 54.5%, play either the "dominant" or "receptive" role,[2] with no expressed preference for either; 27.3% play the "receptive" role only; and 18.2%, the "dominant" role in the sexual act of sodomy. Incidentally, the stereotyped picture of "active" and "passive" roles, or of the "passive-effeminate queen" and the "aggressive-dominant male homosexual" bears little resemblance to the complex variability in homosexual roles or in personality structure of the individuals seen in my research.

Life Styles and Venereal Disease

With these results in mind, I turn now to my own data obtained in the social-psychological study of male homosexuality in the City of Los Angeles described at the beginning of this paper. Since 1959, when the City Health Department drew my attention to the sharp rise in incidence of syphilitic infection among members of my research group, I have interviewed 90 men in sufficient detail to ask questions about V.D. Fifty percent of these men have had gonorrhea—some as many as five times. Gonorrhea is thought of as being only a minor nuisance by most of the individuals whom I have interviewed. In fact, in some instances, recall of the exact number of infections is difficult. Unexpectedly (in view of the reports of high incidence), only three cases of syphilitic infection were discovered. One occurred 20 years ago and the other two since 1959. This finding has puzzled both the City Health Department and myself. Homosexuals, however, find it not surprising, since most of those with whom I talk do not know anyone who has had syphilis. Under my prodding, they have questioned their friends, and some have taken diagnostic tests. Also, they find it difficult to believe that syphilis can result from homosexual practices.

If the incidence of syphilis among male homosexuals is epidemic in proportion, it is difficult to understand why it is not more widespread among the sectors of that population studied in my research. One possibility is that the networks of homosexual contact are so extensive and loosely connected that it takes considerable time for infection to spread to all sectors. Some credence can be given to this possibility, in view of the fact that in the core group of men whom I interviewed in 1954, re-interviewed in 1959 and 1962, two cases of syphilis appeared for the first time in 1962. It is possible that other instances would have been discovered had all men interviewed from 1959 to 1961 been re-interviewed in 1962.

In occupational and educational characteristics, the two samples (253 infected men interviewed by the Health Department, and 90 men interviewed in my research) are remarkably similar, with a high proportion of men in the professional and white-collar classifications, and with high school or college education. Roughly, a quarter of the infected group were living *en menage*, a proportion which corresponds to that in my research group, although direct comparison cannot be made of the two groups in this respect, since partners living together vary in their sexual agreements.

Promiscuity

Susceptibility to syphilitic infection must be associated with other aspects of life styles—but which ones? Promiscuity, defined as the number of different persons with whom an individual has sex contact, is a characteristic of individual homosexual patterns which might be examined as a differentiating factor. Exact data are difficult to obtain, especially as many homosexuals do not remember and do not keep records. In my sample, however, no clear relationship between promiscuity and syphilitic infection can be found. The most promiscuous,

[2] There are no completely satisfactory terms to denote the roles taken in homosexual acts. The terms "dominant" and "receptive," as used by City Health personnel, are interchangeable with the terms "insertor" and "insertee," as used by Bieber, *et al.*

as well as the least, are found among those who have not had venereal infection. A 34-year-old male who rarely has sexual experience with the same person more than once, and who finds his sexual partners in baths (sometimes five or more a night), parks, and streets, with an average of two per week, is in this group. A 42-year-old male who estimates that in the past 15 years he has had sexual contact with 1,500 different males has had gonorrhea once. The two men who were infected with syphilis since 1959 were both living in a long-established homosexual relationship but engaged in episodic sexual relationships with other males, usually with strangers whom they contacted in parks or streets. There are at least 25 males in my sample who are as promiscuous as are these two males, who have not been infected with syphilis. Nevertheless, promiscuity as a contributing factor cannot be ruled out. It may be that the men in my sample are not as promiscuous as are those in the infected sample, but in the absence of an adequate index of promiscuity, it is impossible to make a comparison. The contact index of 5.3 for the syphilitically infected males cannot be used as an index of promiscuity, since in many instances the male homosexual neither knows the name nor has any clue to the identity of his sexual partners. The data are therefore not available for a critical test of the contribution of promiscuity to syphilitic infection.

Social Categories of Persons Involved

A second factor which may increase susceptibility to venereal infection is the preference for a particular social category of persons as sexual partners, such as male prostitutes, heterosexual men (or men presumably heterosexual), other homosexuals, and servicemen. Again, in my data, there is no clear evidence of relationship, but this may be due to the fact that the overwhelming majority of my sample seek sex contact with other homosexuals. Male prostitutes can be ruled out of the Health Department samples, since they constitute only 2.4% of the whole. In my sample, only one man has sex contact with male prostitutes. For three years they have been his only source of sexual gratification, but he has never had either gonorrhea or syphilis. Another seeks contact only with servicemen between the ages of 18 and 21 whom he presumes to be heterosexual and with whom he makes contact on streets or in a public park. He has never been venereally infected, although he is in constant expectation that he will be, and has frequent checkups for this purpose.

Location of Contact

A third factor may be the location in which the contact is made and the place in which the sex act occurs. Location is not thought of as the determining factor so much as its influence on the anonymity or impersonality of the relationships. Contacts initiated or completed in steam baths, theatres, public parks, streets, public toilets or hotels, do not ordinarily begin or end with an exchange of social information or information about personal biographies. In some gay bars, as we have indicated, the same situation prevails. Lack of discrimination about partners may be a contributing factor, but exactly how it operates is not clear. One of the two men in my sample with infectious syphilis contracted it in a ten-minute contact in a public park; the other, in a hotel in which the public restrooms are used for homosexual contacts. In neither instance could names be furnished, or any other identifying characteristic of the persons involved. Yet in my sample those who occasionally go to gay steam baths, streets, hotels, parks or theatres are not rare. Of the core group of 30, 50% go to one or more of these locations for purposes of sexual contacts, at least occasionally.

Form of Sexual Preference and Practice

A fourth factor may be the particular form of sexual preference and practice. It will be recalled that only 5% of the homosexual males with infectious syphilis admitted to oral practices, and, without exception, all admitted to sodomy. In contrast, in the group I have interviewed, all individuals admit to oral practices. Sixteen percent of the core group of 30 prefer fellatio and never engage in sodomy; 43% prefer fellatio but also have, or will on occasion engage in, anal practice; 23% have no preference and engage in all forms of sexual activity; 16% prefer the active or dominant role in sodomy but will also engage in oral practice. In the Bieber (*9*) sample of 106 homosexuals (for which V.D. data are not available), 22% reported a preference for sodomy (8% in the insertor role and 14% in the insertee role); 27% expressed a preference for mutual fellatio; 24% expressed no preference.[3] It is pointed out, however, that in spite of expressed preferences, many homosexuals will perform sexual acts they do not prefer. My

[3] The percentages do not add to 100% because data for sexual preference was not obtained for the entire group.

data would support this finding. Kinsey and his co-workers (*3*) found that "the total of those who have had any type of oral relation in the homosexual, is something over 30%" and that it attains an accumulative incidence as high as 45% in those who have gone to high school but not beyond. The inference appears justified that, since the practice of sodomy in the sample of homosexual males with infectious syphilis occurs without exception, a characteristic which is not found in other homosexual groups, the practice of sodomy increases the probability of such infection.

Chronological Age

A fifth factor which must be considered is chronological age. It will be recalled that in the Health Department sample, the age peak appears between 20 and 24, with a precipitous drop after 35. In fact 61% of the total sample is included in the age range 15 to 29, with 7% (18) of the entire sample between 15 and 19; 21% in the age range 30 to 34; and only 18% in the age group 35 or over. In my sample of 90, however, only 21% of the total sample is included in the age range 18 to 29; 35% in ages 30 to 34; and 44% are 35 or older. Thus my sample may show a low incidence of infectious syphilis because there is under-representation of the young age group most likely to be affected. The reasons for the association between age and the probability of syphilitic or gonorrheal infection which seems reasonable in the light of these data are not difficult to find. It has already been pointed out that youth is highly prized in the homosexual world and more likely to be sought in sexual competition. The novitiate stage in a homosexual career is likely to be characterized by promiscuity, followed by a search for more permanent relationships, although there are variations of this theme. The peak of the sex drive for males occurs during this period and reinforces, or is reinforced by, social factors operating in the homosexual world.

It is reasonable to assume that all of these factors combine, in complex ways, to increase or decrease the probability that male homosexuals will contract and spread venereal infection. A young, highly promiscuous, sexually versatile male homosexual who takes pride in sexual proficiency and conquest, or who seeks escape from loneliness and guilt in "compulsive cruising," and who frequents a wide range of public gathering places where social introductions are not a prelude to the sexual act, is more likely to be infected, although many apparently defeat the laws of chance. Since homosexual circles include a broad cross-section of persons, with respect to occupation, age, social status, and sexual styles, the older and even rarely promiscuous person also runs a high risk.

Caution should be exercised, however, in generalizing from the samples described. The fear of social and legal consequences which leads many homosexuals to go to private physicians and to conceal their sexual patterns may greatly increase the discrepancy between actual and reported incidence in this group. The belief held by many that venereal infection, especially syphilis, is either rare or absent among their members may also prevent the recognition of a great many cases. If the actual incidence were known, the possibility of assigning weight to the critical controlling variables might be more realistically entertained.

Summary

A high degree of promiscuity is supported by expectations and common understandings governing behavior in that sector of the homosexual world characterized as a sexual market. In other sectors of that world, promiscuity may be greatly reduced or enduring monogamous relationships may develop. All sectors tend to overlap so that expectation of transmission of venereal infection from one sector to another is warranted. Although the contribution of male homosexuals to the total incidence of reported cases of primary and secondary syphilis among males in that community was 50% interviews with a group of 90 male homosexuals from various sectors of that community produced only three cases of syphilitic infection. Comparisons of the characteristics of a sample of 253 infected males, with 90 uninfected (except for the three cases) males, show that occupation and educational level will not distinguish the two groups since both are preponderantly from the white collar or professional groups, with high school or college education. Special types in the homosexual group, such as male prostitutes, bisexuals, "passive-effeminate" or "obvious" males, or "dominant-aggressive" males, do not account for the difference. The relation between promiscuity (as an isolated factor), and syphilitic infection is unclear; however, exact indices of promiscuity are difficult to obtain. The evidence shows that syphilitic infection is more likely to occur in male homosexuals in the age group 15–29, who are apt to be highly

promiscuous and sexually successful in the homosexual world, and who engage in anal practices.

It is clear, however, that homosexual males in all age groups, in every occupational level, and with every form of sexual practice and preference are highly susceptible to infection. Because many factors operate to conceal the actual, as contrasted with the reported incidence of syphilitic infection among male homosexuals, further study is needed to assign weight to the critical variables involved.

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Prostitutes' and Their Clients' Perception of Venereal Disease

T. C. N. GIBBENS, M.D.

ABSTRACT

This study, conducted in Great Britain, shows that a person's attitude toward V.D. depends on (a) his own personality, and (b) his evaluation of society's attitude. The latter is particularly determinant in adolescents, especially girls, who often come under the influence of overcensorious authorities. There is a great responsibility to produce a helpful climate of understanding.

One type of young girl, intelligent but unstable, plunges into prostitution as a form of moral suicide; she tolerates V.D. without much complaint, as it fits in with her underlying self-depreciation. The veteran likely becomes very angry about catching V.D.: it interferes with her work and is a sign of inefficiency. A very common motivation to prostitution is marked hostility toward men; for such women V.D. is one more reason to despise them. Another type is the very passive girl who does not seem to care what happens so long as she has a roof over her head: for her V.D. is apt to not mean much.

As for the prostitutes' clients, or men in general, a commonly expressed reaction to V.D. is guilt, nearly always attributed to the disease but actually attached to the infidelity or promiscuity that caused it. A deeper type of response is fear of becoming permanently sterilized or impotent. A third reaction is to regard V.D. as a fundamental blow to one's self-esteem.

Promiscuity among men is found at two extremes: the excessively uninhibited and the excessively inhibited. The latter tend to respond intrapunitively with guilt and depression, but respond quickly to reassurance; the former, extrapunitively, considering themselves damaged and insulted by a "filthy disease" and putting the blame squarely on the women who infected them.

Among personality types is the hypochondriac, who keeps his genito-urinary system under constant observation and is strongly resistant to reassurance. One specific phenomenon among this group is the development of symptoms just before marriage: a last-ditch defense against permanent union with one woman.

SOMMAIRE

Cette enquête, menée en Grande-Bretagne, a révélé que l'atlitude d'un individu envers la maladie vénérienne dépend de (a) sa propre personnalité, et (b) son estimation de l'attitude de la société. Ce dernier facteur est particulièrement déterminant dans le cas des adolescents, surtout les filles, qui souvent tombent sous l'influence de dirigeants trop enclins à la condamnation. Il nous incombe la grande responsabilité à cet égard de créer un climat de compréhension positive.

Un certain type de jeune fille, intelligente mais instable, se précipite dans la prostitution comme dans une espèce de suicide moral; elle tolère la maladie vénérienne sans trop se plaindre, puisque cela se conforme avec son autodépréciation fondamentale. La prostituée aguerrie, par contre, vraisemblablement éprouvera une colère violente d'avoir attrapé la maladie: cela dérange son travail et indique son manque d'habileté. Un sentiment profond d'hostilité envers les hommes représente très souvent le motif primordial conduisant à la prostitution; pour les femmes de cette catégorie la maladie vénérienne est une raison de plus de mépriser l'espèce masculine. Enfin, il y a le type de fille de nature très passive, qui semble indifférente à tout pourvu qu'elle ait un toit au-dessus de sa tête: la maladie vénérienne ne l'affecte guère.

Parmi les clients des prostituées, ou les hommes en général, une réaction souvent exprimée à l'égard de la maladie vénérienne est celle de la culpabilité, presque toujours attribuée à la maladie elle-même, mais en réalité basée sur l'acte d'infidélité ou de promiscuité dont elle a été la conséquence. Un autre type de réaction, plus profond celui-là, se manifeste par la crainte de devenir stérile ou impuissant à perpétuité. Une troisième forme consiste à envisager la maladie vénérienne comme une atteinte mortelle à son amour-propre.

La promiscuité parmi les hommes se rencontre aux deux extrêmes: d'une part, chez les refoulés excessifs, et d'autre part, chez les nonrefoulés excessifs. Les premiers tendent à réagir par autopunition, manifestant des signes de culpabilité et de dépression, mais sont aisément sensibles aux propos rassurants. Les autres, au contraire, projettent la punition sur autrui, s'estimant lésés et injuriés par une "maladie immonde" et blâmant carrément les femmes qui les ont infectés.

Entre autres types de personnalités se trouve l'hypocondriaque, qui observe constamment son système génito-urinaire et se montre très réfractaire aux propos rassurants. Parmi ce groupe one rencontre le phénomène qui consiste à éprouver des symptômes à la veille d'un mariage contemplé: résistance de dernière heure à la perspective de liens permanents avec une seule femme.

RESUMEN

Este estudio, llevado á cabo en Gran Bretaña, prueba que la actitud de una persona para con las enfermedades venéreas resulta de (a) su individualidad y (b) su valuación de la actitud de la comunidad. Esta es espcecialmente determinativa con adolescentes, particularmente con niñas, las cuales con frecuencia caen bajo

la influencia de autoridades demasiado severas. Es grande la responsabilidad de gencrar un clima favorable de entendimicnto.

Un tipo de muchacha, inteligente pero instable, sc arroja à la prostitución como una forma de suicidio moral; ella tolcra la enfermedad venérea sin quejar mucho, porque, esta se conforma con su propio descstimación. La veteraua perita gcneralmente se enoja cuando resulte infcctada porque esto estorba su trabajo y es marca de ineficacia. Un estímulo muy común para la prostitución es una hostilidad cxpresa para con los hombres; para estas mujeras la enfermedad vcnérea es un motivo adicional para dcspreciarlos. Otro tipo es la miña pasiva a quién no le importa lo que suceda con tal que tenga donde abrigarse; para clla generalmentc la enfermedad vcnérea no significa mucho.

En cuanto á los clientes de las prostitutas, ó sea los hombres en general, una rcacción muchas vcces expresada á las enfermedades vcnéreas es la de culpabilidad, la cual se atribuye casi siempre á la enfermedad, pero rcalmente está ligada à la infidclidad ó á la promiscuidad que la originó. Un tipo de contestación más hondo es el miedo dc haecrse estéril o impotente. Una tercera rcaeción es la de considerar la enfermedad un golpe fundamental al amor propio.

Entre los hombrcs la promiscuidad se halla con dos cxtremos: el hombre casi sin inhibición y el con mucha inhibición. Este tiende á responder con culpabilidad y abatimiento, castigándose à sí mismo, pero responde rápidamentc à las afirmaciones dc confianza; aquel crec que ha sido perjudicado ċ insultado por la "enfermedad sucia" y echa toda la culpa a la mujcr que le infectó.

Entre los tipos de personalidad se halla el hipocondriaco, el cual continuamente vigila su sistema génito-urinario y se resiste vigorosamente las afirmaciones de confianza. Un feuómeno cspecífico dc este grupo es la revelación de síntomas un poco antes del casamiento: la última defensa contra la union permanentc con una sola mujer.

THE CONCEPTION of V.D. in the minds of men and women, boys and girls, depends upon their personalities and their appreciation of the attitude of society—two aspects in constant interplay with one another. The college student with V.D. may be intensely anxious, but this anxiety is immeasurably increased by his feeling that he cannot possibly confide in anyone—this is his perception of the attitude of those around him; conversely, the young sailor may be rather anxious, but this soon disappears when he learns that many of the ship's company have been infected in the same port, and the general talk is that V.D. has no more significance than a common cold.

This surrounding attitude of society is especially important in adolescents since those who get V.D. are likely to come under the control of school teachers, institutional staff and social agencies. And it is especially important in girls. Many women teachers or institution staff, however conscientious and devoted, cannot help having an attitude to V.D. which approaches the phobic, as indeed many women in the community have. Over-elaborate precautions are taken about the avoidance of contamination, for example, and this may be especially developed in institutions which are relatively cut off from the normal community life. My own experience has been only partly with adult prostitutes, but much more with adolescent girls who are brought before a court as in moral danger. Nearly all of them have been promiscuous to some extent, but only 5% have V.D.; and about 5% (not the same 5%) have actual experience of prostitution. The girls are often told that they must say nothing of their V.D. to anyone, and there is little doubt that a different attitude is adopted to them by the teachers even though their behaviour has been the same as others. When interviewed, they often appear not to care about or react to their V.D. but I think this attitude is largely due to total suppression of any normal capacity to convey the great guilt they feel which is added to guilt about their conduct.

Miss Ponting, a social worker attached to the V.D. clinic at St. Thomas' Hospital and London Hospital, England has interviewed many teenagers with V.D. As many as 25% were of superior intelligence and had obtained scholarships. This may mean that the more intelligent adolescents realise the need for advice or treatment, or that the intelligent juveniles are more likely to experiment in sexual behaviour, but at any rate they need frank answers to these many questions. One girl in one institution who asked in a discussion whether there was less chance of becoming infected if a man wore a contraceptive was told not to make filthy remarks. I feel we have a great responsibility to produce a proper climate of opinion, particularly as far as girls are concerned.

Prostitutes' Attitudes Toward V.D.

Adolescent Prostitutes

The adolescents who have experience of prostitution, or become prostitutes soon after, differ from the majority of girls in moral danger, and are of course in much greater danger of V.D.

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674-366°—64——29

Their attitude depends upon differences of personality. One group of these young prostitutes are very intelligent but emotionally very unstable girls, from a very disordered background. They have a clear perception of what they are doing, and they plunge into prostitution almost deliberately as a form of moral suicide, as if to say "this is as low as I can go." Sometimes they want to bring shame on respectable parents. This is the sort of prostitute who can sometimes be very successfully rehabilitated. They have a great deal of hostility, sometimes directed outward and sometimes inward. When they get V.D., they tolerate it without much reaction or complaint; mainly, I think, because it fits in with their underlying self-depreciation.

Aggression and the acceptance of aggression is a very common feature of their most permanent relationships—some would say it was sado masochistic. They are really attached to their ponces, although the ponces beat them up and abuse them. Occasionally, they turn on them and get them sent to prison, but they meet them when they come out. If they marry and settle down, the emotional swings often continue—I have known several who committed or attempted suicide after rehabilitation. One girl who settled down well with a well-to-do upper class husband and had three children thought the relationship was quite satisfactory, although they had arguments in which she did not dare to turn her back on him in case he seriously injured her. As Miss Ponting points out, this underlying depressive, self-depreciatory attitude may lead to excessive drinking later on.

Adult (Veteran) Prostitutes

As she becomes older and more professional, the prostitute is apt to become very angry about catching V.D. It interferes with her work and is a sign of inefficiency on her part.

Prostitutes Hostile Toward Men

Another type of young prostitute, much more stable and not liable to depressive moods, owes her condition to a marked hostility and contempt for men, which is perhaps the commonest single factor in prostitution. Even when quite young, men do not seem to stir them emotionally and they soon realise how to be gold-diggers and to use their attractions in material ways—something which the ordinary young promiscuous girl usually does not think about. They often wish they had been men; affectionate relationships are often with women and not a few are overtly homosexual. If they fail to achieve higher things, prostitution comes easily to them where they see men at their weakest and most gullible, and they emotionally cheat them. If successfully rehabilitated these girls do better at professional work—I have known one or two who became successful nurses. If they marry, they are apt to be the dominant partner. For such girls, V.D. is, I think, yet one more reason to despise men. They belong in the extra-punitive group who project blame. I do not know if they ever intentionally infect men, but some clients speak of being discouraged from using any prophylaxis.

Young Passive Prostitutes

There are of course many other sorts of young prostitutes, especially, perhaps, the very passive, indolent girl who does not seem to care what happens as long as she has a roof over her head, and some are very dull girls for whom V.D. does not seem to mean very much.

Attitudes of Promiscuous Men and Clients of Prostitutes Toward V.D.

Our information about the attitude of men was based upon a study of 270 promiscuous men and clients of prostitutes seen in a V.D. clinic, through the cooperation of Dr. Claude S. Nicol and Dr. Ambrose J. King. The study received some publicity, and a dozen or so volunteers came forward and offered to tell us of their unrivaled experiences of prostitutes. None of these volunteers had had V.D., and some took few precautions. They certainly seemed better-integrated personalities, often in steady, highly-skilled employment; but if one looks at the actual extent of promiscuous relations which occur without infection or much prophylaxis, one certainly gets the impression that V.D. is a very sporadic disease. Conversely, young men who get V.D. from their first extramarital contact are quite common. One wondered if this was because their shyness was likely to be overcome by especially experienced and busy prostitutes who were likely to be in great demand. Many of these young men now catch V.D. in foreign countries on holidays. In those seen in the clinic the attitude to V.D. varies widely with personality. About 15% showed too little concern, including sailors or soldiers or immigrant labourers where there are group attitudes which regard V.D. as very unimportant.

Guilt

There are I think several emotional levels at which V.D. produces a reaction. There is, first, the guilt which is so commonly expressed. This

is nearly always attributed to the V.D. itself and its social significance, but really refers to the act of infidelity or promiscuity which gave rise to it. The particular feature which is fastened upon varies very much from case to case. Some feel guilty because they have got it from a prostitute, others because it was not a prostitute; married men may express it as a guilty fear that they may infect their wives or their children, born or unborn. Without the occurrence of V.D. they might have persuaded themselves that they did not feel guilty, but the V.D. puts a stamp upon it and makes it inescapable.

Fear of Permanent Sterility

There is often a second and deeper type of response, best seen in the quite phantastic fears and expectations expressed by quite intelligent and in other respects well-balanced men that they will be permanently sterilised, or in some way incapable of exercising a function which has so much pleasure concentrated in it. If it is ever true that one can speak of long-standing castration fears, it is in such patients. Often, there is a history in such cases of severe masturbation conflicts in adolescence or of fear of V.D. at that age, long before there was any practical risk. For a time, they are so upset that they seem ready to abandon not only promiscuity but sexual intercourse of any kind.

Depression; Wounded Self-Esteem

Thirdly, there are those who seem to experience it as a fundamental blow to their self-esteem, that it is an injury to their integrity which nothing can eradicate. And they show quite deep depression or sometimes a sort of panic.

It may be thought that these are merely minor variations of guilty conscience, but I think the existence of such different levels is demonstrated by the way they appear in quite different types of personality, including those without much conscience. Promiscuity, like other behaviour disorders, is found in those who are at the two extremes of deviation—the excessively uninhibited, and the excessively inhibited. Those who are generally promiscuous with girl-friends, pickups or prostitutes indiscriminately—about 55% of our sample—usually belong to the uninhibited side of normality; their home life, work record and male friendships may be just as erratic or casual as their sex life. When young, they get all the sexual satisfaction they need from picking up girls in dance halls and cafes, and it is only when they get older and less attractive that they begin to rely on prostitutes. Those who go with prostitutes, and especially those who have never had any sexual experience except with prostitutes (about 20%), tend to be at the other extreme—the overinhibited. Their lives are commonly orderly and respectable; they are in a steady job, living with a widowed or dominant mother, and have little interest in girls until they begin to pay very secret and occasional visits to prostitutes well on in adult life. Over 40% of them have their first sexual experience after the age of 20, while the general promiscuous group begin at 15 or 16.

Yet at either extreme there are quite sharp reactions to V.D., though of a different character. Those with good conscience formation between the normal and the overinhibited tend naturally to respond in an intrapunitive way—with guilt, fears, depression and self-accusation. But the uninhibited, unless they belong to the minority and attach very little importance to V.D., are extrapunitive, and still feel that there is a great deal of risk and damage done which has to be brought home to someone.

Attitude of the Overinhibited Promiscuous Male Toward V.D.

Most of the intrapunitive type are guilty and depressed, but respond very quickly to reassurance. It is noticeable that those of high social status may sit quite contentedly in the public clinic next to down-at-heel labourers or simple coloured folk with whom they would not normally associate. On this occasion at least they feel no better than the lowest. Middle-aged men who have accepted but resented their wives' suggestion that they are too old for further sexual intercourse and pay occasional visits to a prostitute as an act of secret spite, may never have any reason to think they have caught V.D. but, nevertheless, come each time for a check-up. They persuade themselves that this is a reasonable precaution, but the unpleasant procedure represents an almost deliberate penance.

It is in the better adjusted members of this group that opportunities for constructive action seem to exist. Many men who have slipped into promiscuity of some kind have for some time been able to give themselves practical explanations and excuses for it which are not up to the level expected, in view of their education and character-formation. V.D. brings them face to face with the fact that this is a direct expression of their personality and relationships, and they seem ripe for some fundamental rethink-

ing. Yet there are few opportunities for them to receive any help with this.

Attitude of Excessively Uninhibited Promiscuous Male Toward V.D.

The extrapunitive type, however, show in their way just as sharp a reaction. Their reaction is to consider themselves damaged and insulted by a "filthy disease," and they put the blame squarely upon the women who have transmitted it. We found too that they blamed the West Indians, the Maltese and Cypriots for bringing it into the country, as if it were a tropical disease. To wait in a clinic with coloured people was like adding insult to injury. No doubt the old terms "French disease," "Spanish disease," and so on are part of the same process. Most of them speak as if V.D. were an accidental epidemic, quite unconnected with their behaviour or personality, just as their sexual relationships are something detached from the main stream of their life. This attitude is more likely, of course, to lead to repeated infection.

Clinic Patients Who Do Not Have V.D.

The most revealing attitudes to V.D. are undoubtedly those shown by patients who do not have V.D. In our material these amounted to 30%; it would be interesting to know if this proportion is rising.

Patients Who Have Been Exposed to Infection

There are, of course, a small proportion of patients without V.D. who have never been exposed to infection at all and present themselves, nevertheless, for a check up. They tend to be either very dull or actually psychotic, with delusions about V.D. or hallucinations that people are accusing them of being infected. The vast majority have been exposed to possible infection, but they divide themselves naturally into those who have had V.D. at some time in the past and fear a recurrence, and those who have never had it. We found that 30% of the uninfected had had a previous infection.

In either case, they vary a great deal in the extent to which their presence in a clinic is at all rational and in the extent to which they can be reassured that they are not infected. One must remember that clinic staff may also vary a great deal in whether they regard a check-up after exposure as reasonable, whether or not there are any symptoms. In all branches of medicine, check-ups on those without symptoms are frequent nowadays. From the clinic point of view, V.D. is a common disease, but if one calculates the exposure-rate of promiscuous people even with few precautions, it is surprising how uncommon it is.

One of the commonest types is the satisfactorily married man who is unfaithful to his wife at a convention or conference. He drinks too much, and then there is a suggestion that some girls should be called up, he does not want to seem a puritan or less of a "good fellow" than the others. Now it is natural that he should want to be sure he will not infect his wife, but his presence is largely due to guilt. They often say that they were too drunk to remember what happened, but this more often sounds like an amnesia which partially exonerates them rather than the truth. The amnesia and the check-up go hand in hand.

The Hypochondriacs

Apart from these fairly reasonable cases there are of course many with a distinctly hypochondriacal reaction. We found that 23% of the total sample showed marked anxiety and 9% a pathological response. They keep constant observation on all genito-urinary functions and are constantly examining themselves; moreover, they are quite strongly resistant to reassurance and find reasons for thinking the doctor is deceiving them. We found this most common in those who had a definite infection a year or two before; they had been open to reinfection, but had no clear symptoms and had usually taken the most careful precautions. They undoubtedly cause great difficulty for their complaints may be suggestive enough to arouse suspicion and the history sufficiently indefinite to make the venereologist hesitant about reassurance until several checks have been made. When reassurance can be firmly given, it is too late for the patient to believe it, if, indeed, there was ever a time when he was open to reassurance. These men, of course, are in the intrapunitive group. They are not the most promiscuous, but have a history of a severe emotional reaction to V.D., a fairly long period of rather desperate total abstinence, followed by a relapse of behaviour which precipitates a relapse in hypochondriacal symptoms. Some have hypochondriacal symptoms of other kinds but many do not, and the guilt is so completely absorbed by the symptoms that they may not show a generally guilty reaction at all.

One hypochondriacal reaction is quite specific—the development of symptoms just before

marriage. It is commonest in young men who have been fairly persistently promiscuous, and it represents a last available defence against marriage. Their promiscuity has represented a fear of close relationships and of putting in the hands of any one woman the ability to hurt them. But as they become entangled almost against their will and marriage approaches, they develop symptoms or complaints of relapse from some previous infection, announce that they are too disgraceful to ruin a nice girl's life and break off the engagement. We saw several examples of this use of V.D. as an excuse for not marrying. One boy of 21 whom I saw in prison had had many anxieties about homosexuals approaching him. He formed a sexually and emotionally satisfying relationship with a girl for a year, and they seemed well suited. Just before marriage he announced (rightly or wrongly) that he had V.D., and in spite of her forgiveness broke off the engagement. He stole some money and attempted suicide. On release from Borstal he impulsively married a destitute girl he had only met for 24 hours and was sorry for; but they separated after a week because the marriage was not consummated after he had frightened her and repelled her by telling stories of his homosexual experience. Such a background of homosexual conflict is not uncommon in the hypochondriacal, and especially the phobic cases. The most inveterate seekers of prostitutes—those who spend every available cent on prostitutes in an almost compulsive way—are often quite obviously trying to convince themselves that they are heterosexual.

The Phobic

The hypochondrial vary widely from the nearly rational to the distinctly irrational. But the last group of those who complain of V.D. without having it—the phobic—are more deeply disturbed. There are several distinctive characteristics. Their phobia of V.D. is much more chronic than the symptoms of the hypochondriacal, and has often been in the background ever since they had masturbation conflicts in adolescence. Their symptoms are much more bizarre—limb pains, headache, lassitude, visual disturbances or alopecia for example. They may be convinced they have V.D. while admitting that they cannot imagine where they could have caught it. Perhaps the most important feature from the epidemiological point of view is that their fear is just as much divorced from their conduct as their symptoms are from reality, for they may remain highly promiscuous in spite of their fears. The hypochondriacal patients react intelligibly by giving up promiscuity at least for a time; but the phobic group continue to expose themselves to what they fear most.

Altogether we felt that about 30% of the total cases showed a reaction which could be regarded as excessive. A fair proportion of the clinic's work, therefore, concerns emotional problems which call for some help, perhaps by the introduction of a psychiatric social worker. Guilt in small doses is a constructive emotion if it leads to action in a new direction. When intense and prolonged, however, it leads to a vicious circle of repetition and should be alleviated as far as possible.

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Sexual Deviation and Venereal Disease

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ABSTRACT

The Forensic Clinic of the Toronto Psychiatric Hospital was formed in 1956 and resulted from public concern over sexual deviations.

From May 1956 to December 1960 there were 983 cases seen, of which 420 were cases of sexual deviation: 152 homosexuals, 115 exhibitionists, 97 pedophiles, 14 voyeurs, 12 cases of transvestism, 9 incest, 15 others.

Four types of service are offered by the clinic: (1) assessment and diagnosis, (2) treatment, (3) teaching, (4) research.

For the sexual offender several types of therapy are available, including reconstructive psychotherapy, reeducative and supportive psychotherapy.

Sexual deviation is defined as any mode of sexual behavior which interferes with the function of reproduction and in which the sexual behavior has final, persistent preference over normal genital intercourse.

During the course of treatment some patients became re-infected or contracted another venereal disease. A number of cases of ulcerative proctitis and mucus colitis have turned out to be primary chancres and gonococcal proctitis. Primary chancres have been encountered on the tongue and inside of the cheek as well as the usual site.

An attitude of indifference toward the acquired venereal disease was noted in most patients.

An increase in the incidence of venereal disease from homosexual sources has been reported. From experience in assessing and treating many homosexual patients, and from research studies we hope to contribute some understanding of the problem statistically and form an appreciation of the psychodynamic etiology of venereal disease in homosexual patients.

SOMMAIRE

La Clinique médico-légale de l'Hôpital psychiatrique de Toronto a été organisée en 1956 en raison de l'inquiétude manifestée par le public à l'égard des perversions sexuelles.

De mai 1956 à décembre 1960, 983 cas furent examinés, dont 420 étaient des cas de perversion sexuelle: 152 homosexuels, 115 exhibitionnistes, 97 pédophiles, 14 voyeurs, 12 cas de travestissement, 9 incestes, 15 divers.

La clinique fournit quatre genres de services: (1) détermination et diagnostic, (2) traitement, (3) instruction, (4) recherches.

Elle offre plusieurs types de cures pour les délinquants sexuels, y compris la psychothérapie en profondeur, la psychothérapie de rééducation et celle de soutien.

La perversion sexuelle se définit comme tout mode de comportement sexuel qui entrave la fonction de reproduction et dans lequel le comportement sexuel proprement dit a constamment plus d'importance que le coït génital normal.

Certains malades sont réinfectés au cours de traitement ou contractent une autre maladie vénérienne. Un certain nombre de cas de proctite ulcérative et de colite muco-membraneuse se sont révélés comme des chancres indurés et des proctites gonococciques. On a rencontré des chancres indurés sur la langue et à l'intérieur de la joue aussi bien que dans les sites habituels.

On a remarqué chez la plupart des malades une attitude indifféreute à l'égard de la maladie vénérienne qu'ils avaient contractée.

On a signalé une fréquence accrue des maladies vénériennes d'origine homosexuelle. Grâce à l'expérience acquise dans l'identification et le traitement de nombreux malades homosexuels comme aux études de recherches, on espère pouvoir fournir une explication statistique à ce problème et arriver à une évaluation de l'étiologie psychodynamique des maladies vénériennes chez les malades homosexuels.

RESUMEN

La Clínica Forensica del Hospital Psiquiátrico de Toronto se estableció en 1956 como producto de la preocupación pública en relación con las enfermedades sexuales.

Desde Mayo de 1956 a Diciembre 1960 hubo 983 casos examinados de los cuales 420 eran casos de desviación sexual; 152 homosexuales, 115 exhibicionistas, 97 pedofiliacos, 14 voyeristas, 12 transversistas, 9 incestuosos y 15 de otros tipos.

La clinica ofrece cuatro tipos de servicio: (1) examen y diagnóstico, (2) tratamiento; (3) enseñanza y (4) estudio.

Hay varios tipos de terapia para el delineuente sexual, incluyendo psicoterapia reconstructiva, reeducativa y de apoyo.

Se puede definir la desviación sexual como un tipo de conducta sexual que interfiere con la función de reproducción, en la cual la conducta sexual tiene preferencia sexual y persistente sobre el coito genital normal.

Durante el curso del tratamiento algunos pacientes pueden ser re-infectados o pueden contraer cualquier otra enfermedad venérea. Un número de casos de proctitis ulcerosa y de colitis mucosa han llegado a ser verdaderos chancros primarios y proctitis de gonococos. El chancro primario ha sido localizado en la lengua y dentro de la mejilla así como en los lugares usuales.

Una actitud de indiferencia hacia las enfermedades venéreas adquiridas fue observada en la mayoría de los pacientes.

Un aumento en la incidencia de enfermedades venéreas de origen homosexual, ha sido notificado. Por experiencia al examinar y tratar muchos pacientes homosexuales y por los estudios realizados en investigaciones esperamos contribuir a comprender el problema estadisticamente y formar una evaluación de la etiologia psicodinamica de las enfermedades venéreas en pacientes homosexuales.

THE CONCEPTS expressed in this paper were acquired at the Forensic Clinic of the Toronto Psychiatric Hospital; therefore, it is appropriate to describe this clinic before discussing sexual deviation and its relationship to venereal disease. The Forensic Clinic is attempting to provide service in three areas:

1. An active affiliation of forensic psychiatry in the psychiatric or mental hospital and medical school;
2. The extension of psychiatry to offenders other than those incarcerated; and
3. The teaching of forensic psychiatry to undergraduates and postgraduates in the Faculty of Medicine of the University of Toronto.

The Forensic Clinic was formed as a new out-patient division of the Toronto Psychiatric Hospital in May 1956. It resulted from public concern over sexual deviations, particularly assaults on children which resulted in three tragic deaths of children during the preceding winter. An open meeting was held in Toronto with a panel consisting of Dr. Ralph Brancale, Dr. Kenneth Gray, Dr. Manfred Guttmacher, and Dr. Fred van Nostrand. As a result of this meeting the Department of Health and the Province of Ontario opened the Forensic Clinic for the out-patient study and treatment of persons charged with criminal offences, particularly sexual offences.

Since the clinic's inception in May 1956 to December 1960, there were 983 cases seen, of which 420, or somewhat less than half, were cases of sexual deviation. These consisted of 152 homosexuals, 115 exhibitionists, 97 pedophiles, 14 voyeurs, 12 cases of transvestism, 9 incest, and 15 others, such as sado-masochism, bestiality, and multiple perversions.

Services Offered

Four types of service are offered by the clinic: (1) assessment and diagnosis, (2) treatment, (3) teaching, (4) research. The clinic provides opportunity for the study and appraisal of cases referred by the courts prior to passing sentence. These cases are referred by statute under section 109(d) of the Ontario Mental Hospitals Act, R.S.O. 1960, and such an order permits the clinic to conduct an examination of the mental and physical condition of the offender. Cases of sexual deviation are referred by provincial probation officers, other psychiatric clinics, hospitals, private physicians and community agencies, such as the John Howard Society, the Elizabeth Fry Society, the Children's Aid Society and the Toronto Mental Health Clinic. A number of cases voluntarily seek the assistance of the clinic and this group continues to increase as the functions of the clinic are more widely known.

Assessment and Diagnosis

In addition to the psychiatric, psychological and social work contributions to the assessment of the sexual deviate, ancillary tests such as encephalograph and X-ray are carried out at the Toronto Psychiatric Hospital. The entire consultant medical and surgical staff of the hospital are available upon request. Physical examinations are performed on many patients attending the clinic and a sample of blood is always taken to be forwarded to the Department of Health Laboratory for testing for syphilis.

Treatment

The Forensic Clinic carries out treatment of the sexual offender regardless of the source of the referral. Several types of psychotherapy are available including intensive long term and reconstructive psychotherapy, re-educative and supportive psychotherapy. Most cases are seen once a week. Studies have been carried out in the use of group psychotherapy in the treatment of sexual deviations since 1957. As part of the Toronto Psychiatric Hospital, the Forensic Clinic has a close teaching affiliation with the University of Toronto and the Faculty of Medicine.

Teaching and Research

Teaching involves both undergraduate and postgraduate students but is also offered to other disciplines such as psychologists, social workers, nurses and probation officers. Notwithstanding the demands of service and teaching, a prodigious programme in clinical research is being carried out. Intensive study of the psychodynamics of the deviations, the use and effi-

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ciency of group psychotherapy, a comparison of the sexual deviations with groups of normals, parent-child relationships in sexual deviants and follow-up studies are some of the research projects currently under investigation.

Sexual Deviation Defined

We define sexual deviation as any mode of sexual behaviour which interferes with the function of reproduction and in which the sexual behaviour has final, persistent preference over normal genital intercourse. A diagnosis of sexual deviation may be made with respect to the person who is severely troubled with thoughts and phantasies which are sexually deviant but who has not acted out such thoughts. The homosexual patient comprises the largest group of patients coming to the clinic voluntarily and the third largest group of patients referred by the courts. It is well known that this deviation occurs in females as well as males although only males are usually prosecuted as sex offenders. We do not often see a person you can describe as being exclusively homosexual as opposed to a person who is heterosexual; there are gradations between the two extremes. The practices engaged in by these patients mainly consist of mutual masturbation, sodomy or anal intercourse and fellatio. These can occur in both active and passive forms depending upon the individual preference.

V.D. in Homosexual Patients

The instances of venereal disease encountered in patients at the Forensic Clinic have been in the homosexual patients. To my knowledge, no cases of venereal disease have been initially detected at the clinic. Some patients are referred to the clinic when their problem with homosexuality became apparent after they sought medical assistance for an ailment that proved to be of venereal origin. During the course of treatment some of these patients became re-infected or contracted another venereal disease. This information is usually revealed during the psychotherapy sessions and the patient has again returned to his family physician for diagnosis and treatment of the disease. A few patients became infected initially after psychiatric treatment began; however, they similarly sought the services of their family physician. The aforementioned practices engaged in by homosexuals as well as their reticence to discuss their sexual pathology with their family physicians contribute to the difficulties in determining the etiology of their presenting symptoms. A number of cases of ulcerative proctitis and mucus colitis have turned out to be primary chancres and gonococcal proctitis. Primary chancres have been encountered on the tongue and inside of the cheek as well as the usual site. They are rarely discovered in the anal area because the lesion is usually distal to the sphincter and not easily seen.

It is of interest to the therapists at the clinic that most of the patients exhibit an attitude of indifference toward their acquired venereal disease. This is particularly significant because these patients frequently are highly recognized professionally in the community and are in the bright normal to superior range of intelligence. This phenomenon could well pose an interesting study of the psychodynamics involved.

Case Histories

Perhaps our experience at the clinic can be better communicated to you by mentioning examples from some case histories. Mr. A. is an 18-year-old youth who is an honor student in his final year at secondary school. He is the second son of intelligent and upper middle class parents. He consulted his family physician because of pain on defaecation accompanied by blood-tinged stools. A diagnosis of fissure-in-ano was made; however, the lesion failed to respond to usual methods of treatment. A biopsy revealed the presence of a luetic lesion. When the youth admitted his homosexual practices he was referred to the clinic for psychiatric assistance.

Mr. B. is a 28-year-old secondary school teacher who was referred to the clinic by a speech therapist. In the course of treating the patient for stuttering, his homosexual interest became known. During the initial phase of his treatment, this patient contracted syphilis and gonorrhoea. He complained to his physician of a urethral discharge, pain on micturition, a copious purulent anal discharge and bilateral inflammation of the conjunctiva. A diagnosis of gonococcal urethritis, proctitis and conjunctivitis was made. A blood sample was taken before antibiotics were administered and indicated the presence of a syphilitic infection. He was not especially concerned about his illness; however, he did attend his physician for treatment. Ten weeks later he became re-infected with a gonococcal proctitis which his physician treated. He continued for some months to seek out homosexual partners of a type that would increase his likelihood for re-infection and at

no time did he indicate concern about his somatic illness.

Mr. C., a 35-year-old business executive, was married and had two children. He always had a sexual interest in men but never approached a man for sexual purposes until he visited a large metropolitan centre on a business trip. He had one homosexual encounter with a casual pick-up. One month later he was admitted to a hospital for repair of an inguinal hernia and routing haematological investigation revealed he had contracted syphilis, although the patient denied having any complaints referrable to the infection. Examination of his wife showed no evidence of infection, yet they enjoyed normal sexual relations until his admission to hospital. This patient did particularly well in psychotherapy and has made a satisfactory heterosexual adjustment with no homosexual urges or phantasies.

The last patient is of academic interest. He originally came to the clinic as a court referral because he was arrested while impersonating a woman. The history revealed he had spent the last six of his 26 years dressing and working as a woman. He lived with a man as his wife for one year. Physically and emotionally this person appeared predominantly feminine; only the presence of male genitalia confirmed his sexual origin. Investigation in the endocrine unit of the Toronto General Hospital revealed that the patient was an example of Klinefelter's syndrome with the chromosomal composition. His attempts to live as a man were ridiculed by his peers; nevertheless, the courts insisted he do so. Because he sought men for sexual partners, he was labelled homosexual. He was admitted to a mental hospital on three occasions because of attempts to commit suicide. After lengthy deliberation at a clinic conference comprising all the disciplines concerned, it was agreed to accord the patient his wish and surgically transform him into a woman. The operation was very successful and the patient made an uneventful recovery. Soon after her release from hospital she dated a man and during the course of the evening they had sexual intercourse. Three days later she was due to have a follow-up examination by the surgeon and he discovered a purulent vaginal discharge. The patient complained of dysuria and a urethral discharge. A smear of the purulent exudate established the diagnosis of gonorrhoea.

The Department of Health for the Province of Ontario, Venereal Disease Control Division, have reported an alarming increase in the incidence of venereal disease from homosexual sources. From our experience gained both from assessing and treating large numbers of homosexual patients and from research studies carried out within the clinic, we hope to contribute some understanding of this problem statistically and from an appreciation of the psychodynamic etiology of venereal disease in homosexual patients.

Summary

The aims of the Forensic Clinic and the services provided are described. The acquisition of venereal disease by homosexuals is reported from the information gathered in the clinic. Allusion to the contribution of psychodynamic factors in these patients is made and several examples of homosexual patients who contracted venereal disease and received psychiatric assistance at the clinic are outlined.

Deterrent Effects of Venereal Disease in Subsequent Sexual Behavior

JOHN BEESTON, M.D.

ABSTRACT

Since V.D. is now largely the result of extra-marital sex activity, behavior characteristics that precipitate this type of action must be understood before the whole mechanism for the prevention of V.D. can be fully applied.

Because of the great shortening of treatment time for V.D. with the introduction of penicillin, it is now possible for reinfection to occur at much shorter time intervals. Most studies of V.D. repeaters have dealt with gonorrhea rather than syphilis. About one male in every three is the extent of repeating.

Repeating tends to increase with the age of the repeater.

There are two general groups of repeaters: (a) unskilled, relatively misinformed, of low school achievement, and less sophisticated; (b) having a higher school level and sophistication, somewhat blasé about infection, treatment, and chances of becoming infected. V.D. and sex education should be helpful for the first group, psychotherapy for the second.

It appears that the persons most likely to be repeatedly involved with V.D. are those with personality conflicts which prevent them from establishing sustained love relationships.

While isolated cases may occur in which V.D. acts as a deterrent in reducing further promiscuous behavior, this is generally not the case.

A neurotic personality unable to sustain long-term relationships substitutes sexuality for affection and cannot be deterred by repeated infections of V.D.

SOMMAIRE

Du fait que la maladie vénérienne est actuellement dans la plupart des cas le résultat d'une activité sexuelle en dehors du mariage, les caractéristiques du comportement qui produisent ce genre de manifestation doivent être comprises avant que le mécanisme de prévention de la maladie vénérienne ne puisse être intégralement appliqué.

Depuis que la période de traitement des maladies vénériennes a été considérablement raccourcie grâce à l'introduction de la pénicilline, il est maintenant possible de se réinfecter à des intervalles de temps beaucoup plus courtes. La plupart des études consacrées aux récidivistes de la maladie vénérienne ont traité de la gonorrhée plutôt que de la syphilis. Le taux de récidivité est d'environ un homme sur trois.

La récidivité tend à augmenter en raison de l'âge du récidiviste.

Il y a deux groupes généraux de récidivistes: (a) les individus sans specialité professionnelle, relativement mal informés, dotés d'une instruction scolaire limitée, et figurant parmis les êtres les moins raffinés; (b) ceux possédant une plus grande mesure d'instruction et de raffinement, tendant à être blasés au sujet de l'infection, du traitement, et des chances d'être infecté. L'instruction en matières sexuelles et vénériennes aurait un effet salutaire sur les individus du premier groupe, et la psychothérapeutique viendrait en aide à ceux du second.

Il semble que les personnes les plus susceptibles d'être infectées de maladies vénériennes à plusieurs reprises sont celles souffrant de conflits de personnalité qui les empêchent d'établir des rapports affectueux de longue durée.

Quoique des cas isolés peuvent se produire où la maladie vénérienne agit dans le sens de restreindre la promiscuité à l'avenir, ceci n'est pas dans l'ordre général.

Une personnalité névrosée inapte à entretenir des rapports de longue durée, substitue la sexualité à l'affection et ne peut pas être détournée par des infections vénériennes répétées.

RESUMEN

Ya ahora las enfermedades venéreas son en gran parte el resultado de actividades sexuales fuera del matrimonio, deben comprenderse las caracteristicas de comportamiento que ocasionan estas actividades, antes de que se puedan aplicar plenamente los procedimientos para la prevención de enfermedades venéreas.

Desde la iniciación del uso de la penicilina, el tiempo requerido para el tratamiento de enfermedades venéreas se ha acortado y, debido a ésto, ahora es factible que las infecciones reincidan luego de intérvalos de tiempo más cortos. La mayoria de los estudios de enfermos venéreos reincidentes, se han ocupado más de casos de gonorrea que de sifilis. Uno de cada tres varones tiene propensidad a repetir.

La reincidencia tiende a aumentar con la edad del reincidente.

Hay dos grupos generales de reincidentes: a) los inhábiles, relativamente mal informados, de poco aprovechamiento escolar y menos sabidos; b) los de nivel escolar más alto; más sabidos; bastante indiferentes a la infección, al tratamiento, y a las posibilidades de infectarse. La educación sexual y de las enfermedades venéreas son útiles para el primer grupo; psicoterapia para el segundo.

Parece ser que las personas que más repetidamente contraen enfermedades venéreas, son aquéllas con divergencias de personalidad, que les impiden establecer relaciones amorosas permanentes.

Aunque hay casos aislados en los que las enfermedades venéreas actúan como deterrentes para reducir la promiscuidad ulterior, no ocurre así en todos los casos.

Una personalidad neurótica, que no puede mantener relaciones duraderas, pone las actividades sexuales en lugar del cariño, sin arredrarse ni aún con contagios repetidos de enfermedades venéreas.

THE TITLE OF this paper, "Deterrent Effects of V.D. in Subsequent Sexual Behavior," may be interpreted as a statement or a question. As a statement, if it ever had any real validity, it suggests a pre-penicillin era in a moralistic culture. As a question, it raises a number of interesting speculations.

Webster's Dictionary defines "deterrent" as "serving to deter." "Deter" is then defined as "to turn aside or discourage through fear, hence, to prevent from action by fear of the consequences." If then, V.D. could serve as a deterrent to subsequent sexual behavior (assuming for the moment that this is desirable) it follows that fear, either conscious or unconscious, of someone or something is possible.

Undoubtedly, there must have been some instances in which fear of parental or peer group disapproval of V.D., as an index of promiscuity, has inhibited sexual behavior. Similarly, fear of the pathological effects of the venereal diseases must also have played a part in reducing the sexual activity, either in quantity or quality or both, in some persons. The definition quoted suggests reduction of sexual activity from fear of V.D., but the possibility of increasing sexual activity leading to further V.D. as a punishment or masochistic reaction may also occur. The behavior of an "accident prone" individual may be regulated by more meaningful mechanisms (to him) of self-destruction than by following the precepts of accident prevention.

The implication of the title of this paper, then, suggests that some types of behavior, which could be regarded as sexual, might in certain circumstances result in V.D. Whether the particular behavior was truly sexual would depend on cultural norms.

In the 15th and 16th centuries, when syphilis was epidemic in Europe and knowledge of the spread of infection was unknown, simple contact spread of the disease must have been very common. At the present time most V.D., in adults, is transmitted by activity that is essentially sexual in nature. However, there is still plenty of evidence to show that many ill-informed persons are unaware of this. The continued fiction of the role of the toilet seat is one example.

A graphic presentation of these hypotheses is given in Figure 1.

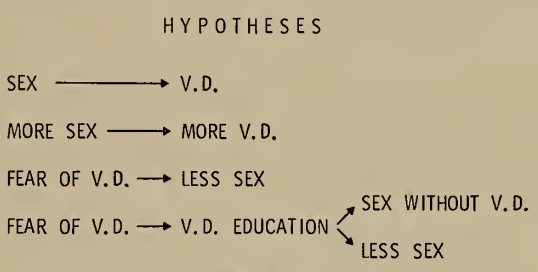

Figure 1

If these notions are correct, emphasizing V.D. education would seem to solve or minimize the problem. Military organizations, which provide close supervision of their personnel, subscribe to this in part by organizing V.D. educational activities. They also know that programs to reduce or regulate prostitution near military establishments, as well as prophylactic centers, are important measures in the control of V.D.

The evidence from numerous studies suggests that since V.D. is now largely a result of extramarital sex activity, the behavioral characteristics which precipitate this type of action must be understood before the whole mechanism for the prevention of V.D. can be fully applied. In the meantime, attention is directed to early diagnosis and treatment, searching for contacts, prophylaxis and V.D. education. Even the ultimate development of specific immunizing agents would not eliminate the need for more basic considerations of child-rearing practices, and the development of sound attitudes and values to life in general and sex in particular.

A more meaningful chain of learning would be that shown in Figure 2.

Characteristics of the V.D. Repeater

Because of the great shortening of treatment time for the venereal diseases since the introduction of penicillin, it is now possible for re-infections to occur in much shorter time intervals. Also, because of the shorter incuba-

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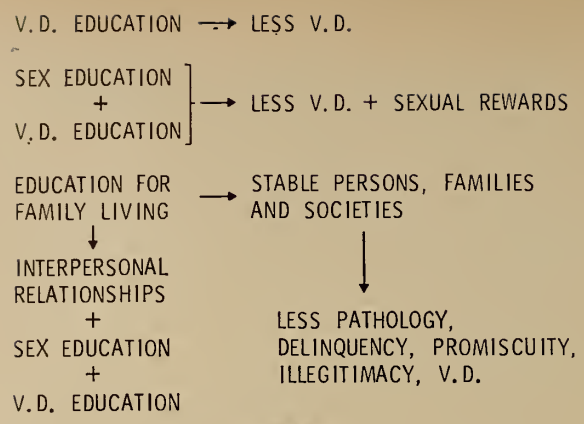
V.D. EDUCATION → LESS V.D.
SEX EDUCATION + V.D. EDUCATION → LESS V.D. + SEXUAL REWARDS
EDUCATION FOR FAMILY LIVING → STABLE PERSONS, FAMILIES AND SOCIETIES
INTERPERSONAL RELATIONSHIPS + SEX EDUCATION + V.D. EDUCATION
LESS PATHOLOGY, DELINQUENCY, PROMISCUITY, ILLEGITIMACY, V.D.

Figure 2

tion period, shorter time for development of clinical symptoms and the relative ease of diagnosis, most of the studies of V.D. "repeaters" have dealt with recurring gonorrhea in males, rather than syphilis. The definition of the term "repeater" varies in different studies. In general, more than one infection in the period of the study was the commonest definition used.

Many of these studies have tried to measure not only the extent of repeat V.D. infections but also some of the psycho-social factors of the repeaters. There are special problems associated with these investigations. Besides diagnostic and reporting difficulties, controlling the variables in a sample that tends to be mobile, of low social status and education, complicates an accurate measurement of the extent of repeaters. The following are some of the estimates of male gonorrhea repeaters (Table 1).

Something in the order of one in every three infections would seem to be the extent of repeating in these studies. The low figures in the last two studies, which were both concerned only with military personnel, may reflect a true reduction of repeat infections or, more likely, concealment of re-infection to avoid punishment.

Table 1. Extent of repeat infection with gonorrhea

	Percent
Anderson and Nelson, Vancouver, 1954	33
Boese, Kansas, 1953	42
Bundesen, Chicago, 1949	30
Glass, Los Angeles, 1961	34
Johnson and Morris, Vancouver, 1953:	
Females	36
Males	29
Marcussen and Keldbeck, Copenhagen, 1952	40
Watt, Manchester, England, 1958	45
Watts and Wilson (Military), Canada, 1945	12
Wittkower (Military), England, 1948	14

An additional complicating factor is the normal expectation that "repeating" increases with age of the repeater. In other words, the older the person the more time there has been for repeat infections. Several studies support this. More enlightening is the correlation of Marcussen and Keldbeck in the Copenhagen study between the number of infections and the mean time interval between them. (Table 2).

Several of the studies mentioned elaborate on the psycho-social characteristics of the V.D. repeater. As might be expected, many of these are similar to patterns found in other problems of personal or social disturbances, such as illegitimacy. For the purpose of this paper, two points appear significant. These were well summarized by Lentz in a study of male gonorrhea repeaters in Philadelphia. He divided his repeaters into two groups:

Table 2. Time intervals between repeat infections of gonorrhea, Marcussen and Keldbeck, Copenhagen, 1952

Number of infections	*Mean Interval in Years*
2	4.7
5	2.2
6–10	1.6
11–28	.7

1. Those who were unskilled, relatively misinformed of lower school achievement, and less sophisticated.

2. Those who had a higher level of schooling and sophistication, who were somewhat blasé about infections, treatment, and the chances of becoming infected.

It appears likely that ignorance of V.D. and other matters of sex would be an important factor in the first group, whereas emotional instability, in some cases amounting to psychoneurosis, would be prominent in the latter. One would also suspect that the frequency and number of infections would tend to decline with age in the first, dull normal group, as they slowly learned by experience, while the second neurotic group would tend to maintain their repeating behavior if not increase it.

If these hypotheses are correct, then concentrated V.D. and sex education tailored to the culture and understanding of the first group

should be helpful. For the second group, nothing but the deepest and most penetrating form of health re-education, namely, psychotherapy, is likely to have much effect.

Watts and Wilson in their study of military personnel concluded: ". . . a significantly large number of soldiers who develop V.D. have personality defects. They are more immature and unstable, heavier drinkers, and duller men than the control group of soldiers. Abnormal childhood, environment, marital incompatibility and unsatisfactory army adjustment appear in much greater percentage among them."

Wyness, although not investigating the pathogenesis of repeaters, noted that the repeater group was made up of: ". . . young adults . . . living a rootless existence; they had no close relationships and most of them described their sex partners as casual friends or strangers."

Safier *et al.*, in a study not concerned directly with V.D. but with promiscuity, noted the importance of conflict and frustrations, and stressed the importance of neuroses:

> ". . . unsatisfactory familial relationships, often including broken homes and unsatisfactory interpersonal relationships were among the factors which appeared to have a direct relationship to promiscuous behavior.
>
> ". . . current environmental factors, such as unsatisfactory living conditions, the absence of community ties, and the making of casual friendships were often found to have contributed to the promiscuous behavior, but could not be considered as the primary cause in any case of habitual promiscuity."

Characteristics of the V.D. Non-Repeater

As might be expected, most investigators have attempted to define a "problem" and then to devise a research design to explore it. Very few attempts seem to have been made to examine the "non-problem" and presumably "normal" population in relationship to sex behavior and the lack of V.D.

Loeb, in 1960, completed a study for the American Social Health Association in Southern California among Junior High School students, in which he explored the attitudes and values of those teenagers considered to be "good": "Out of this we hope that we can identify those strengths and sources of strength which contribute to their behavior or which is assumed to be relatively acceptable to self, significant to others and to the community."

Loeb points out that even in "model" families, the cultural trends of the 20th century, at least in the Western nations, have increased the difficulty of identifying sex roles during adolescence. This is particularly true for boys since the shift from predominantly rural farm life to one of extensive urbanization has eliminated many of the earlier well-defined male roles. Young girls today have plenty of models and opportunity to practice their future roles as wives and mothers in various household duties. The presence of father in the kitchen in an apron while mother performs some chore in the garden in trousers may add to the sex role confusion for some adolescents. Perhaps regrettably for the males at least no one has established these reversals of roles as deeply significant.

In families in which there are less than "model" conditions for influencing the personality development of children, either because of the absence of one or both parents or their substitutes, or from failure to discharge, adequately, the expected parental role, some degree of inadequacy in the personality of the child might be anticipated. It appears that since the "model" role is impossible to fulfill for anyone consistently, there is a considerable "safety factor" in developing family relationships. The resilience of the human organism in coping with stress situations should not be forgotten. This leads to the recognition that eventually, in any situation, there is a breaking point. Long before this point is reached, continued stress may have produced deep scarring. In this connection, it is important to recognize that even if the parents believe they are discharging adequate roles as parents, and even if they actually are doing so as seen by impartial observers, if the child in question does not perceive it as adequate, according to his expectations, then conflicts and frustrations may occur. In other words, the eye of the child beholder is the crux of the situation.

Some of these frustrations are useful insofar as they provide testing situations for the child in understanding limits and responsibilities. An excessive and continual amount of stress or the lack of suitable compensations of love and affection may only lead to deeper and more permanent trauma.

Loeb's pilot study was aimed at identifying the characteristics of those adolescents who are least likely to be exposed to V.D. Some of the studies mentioned earlier were concerned with the opposite end of the spectrum and suggested that the persons most likely to be repeatedly involved with V.D. were those with personality conflicts which prevented them from establishing sustained love relationships.

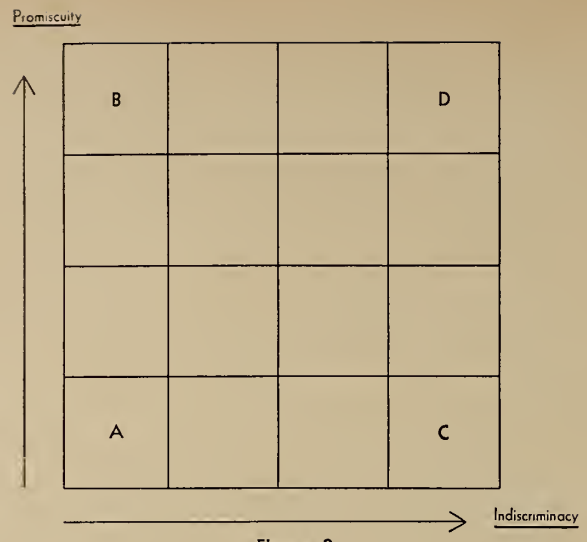

Figure 3

Since V.D. is usually contracted from sexual contacts, it follows that the more frequent the exposure, and the greater the number of sexual partners, the greater the incidence of V.D.

Loeb defined these two factors as follows: "*Promiscuity*, referring to the rate of non-marital sexual intercourse, and *Indiscriminacy*, as the degree of care exercised in selecting sexual partners." Figure 3 represents this graphically.

Individuals in Group A have the lowest level of promiscuity and exercise great care in selecting their few partners. In this group V.D. would be expected to be very infrequent. Group B represents individuals with a high frequency of promiscuous activity, but with one or two partners only. Incidence of V.D. in this group is likely to be greater than in Group A, especially if the female partners of the Group B males are themselves indiscriminate in choosing their sexual partners.

Group C represents those males who are not promiscuous very often, but perhaps sporadically once or twice a year have a sexual contact without exercising much discrimination in selecting their partner. Considering the few occasions on which this occurs for Group C males, the probability of V.D. is relatively high. Group D represents those males who have the highest frequency of sexual contacts with every available person.

The males in Group D are those with serious personality defects. Wittkower suggests that their incapacity for sustained love relationships:

> "begins when the child turns from ego-centricity to establish a reciprocal love relationship with his parents. If that relationship is poorly produced, by the experience of frustration, then he will carry into adulthood an excessive load of self-love, never having learned mature interpersonal love.
> ". . . The result is that women are never something which he can love. He never reaches sexual maturity, only sexual gratification for himself alone."

Ego Identity and V.D. Repeaters

The Objects Relation Theory of Fairbairn explores the inner world of our subjective experience in which "internal objects" are perceived as psychic parallels to their external counterparts. For the most part, these internal objects are based on models representing the parents, and have strong psychic reality of their own. If these internal objects, which develop as the result of parent-child contacts throughout childhood, closely resemble desirable and acceptable parent norms in the external world of reality little conflict occurs. The child is internalized with reality and grows up with confidence to relate to others in sustained and trusting ways and to have respect for himself.

On the other hand, if the developing child-parent relationship is consistently frustrating and insecure, the internal objects develop more and more divergence from external reality, but remain nonetheless powerful forces of inner psychic activity. In these circumstances, the ordinary restraints in developing self-mastery either do not develop, or they break down in psychoneurotic behavior.

During adolescence, the continuing development of ego identity is more and more concerned with sex-role identification. If the earlier stages of ego-centricity have not been satisfactorily resolved by reciprocal love relationships with the parents, the adolescent male enters adulthood with an overload of narcissism. This makes the establishment of adult sustained love relationships difficult. The urge to continue to try to achieve the unattainable persists, with increasing frustration.

In the young male, this leads to ambivalent strivings in female relationships that, on the one hand, seek intense pseudo-maternal love and affection and, on the other, produce outbursts of aggression in futile attempts to compensate himself for rejection as a lover.

Wittkower suggested that because these individuals cannot get what they want, they are driven towards homosexual relationships,

which in turn "strongly reinforces their drive to promiscuity."

Summary

In summary, then, it appears that V.D., in males at least, is frequently associated with two chief stereotypes.

1. Low levels of intelligence, education, skills and sophistication.
2. Neurotic individuals of higher education and sophistication who are promiscuous as the result of prolonged ego-centricity.

It is clear, that while isolated cases may occur in which V.D. has acted as a deterrent in reducing further promiscuous behavior, at least temporarily, in general, this is not the case.

Fear is a very poor motivational force for long-term health action. The imminent threat of a smallpox epidemic may produce short-term results in raising the vaccination status of the population; long-term and continuous educational programs of a broad nature are needed to achieve more lasting effects. In the case of V.D., such broad programs are handicapped by being "too little, too late" in most cases and need to be geared to those most in need, as well as for general education.

The neurotic personality who is unable to sustain long-term relationships substitutes sexuality for affection and cannot be deterred by repeated infections of V.D. The records of every V.D. clinic support this position and, at the same time, should emphasize the need for stronger efforts to rehabilitate these persons.

In view of what has been said here of the importance of adequate personalities in parents, if their children are to have a proper chance to develop stable characteristics, nothing less than intensive therapy can hope to break the vicious circle in which the V.D. repeater finds himself.

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Some Observations on Recent Trends in the Incidence of Syphilis

JACOB GOLDSTEIN, Ph.D.

ABSTRACT

We reduced the U.S. incidence rate to 3.8 per 100,000 for infectious syphilis civilian cases in 1956–57, but in 1960–1961 the rate rose to 10.4. There has been a slowing down in the rate of increase, apparently since the second half of 1960, but an upward trend is still evident in the most recent data.

The considerable number of cases of failure to trace the source of infection, and also the comparatively high rates for forms of syphilis other than the recent infectious form, indicate a very large number of cases unidentified in the infectious stage.

In the case of New York City, the evidence suggests strongly that the increased incidence reported reflects a real and probably very substantial increase in syphilitic infection. The pattern of geometric rates of reported increase of infectious syphilis is common to the whole city and is substantially the same for all sociological strata. The rates for late-latent, late, and congenital cases of syphilis show a marked decline from 1957 to 1960.

SOMMAIRE

Nous avions réussi aux Etats-Unis à réduire le taux d'incidence civile de la syphilis infectieuse jusqu'au point où il ne représentait que 3.8 cas pour 100,000 habitants à l'époque 1956–1957. En 1960–1961, cependant, le taux était remonté jusqu'à 10.4. Il y a eu un ralentissement dans le rhythme d'accroissement, apparemment depuis la deuxième moitié de 1960, mais les données les plus récentes indiquent qu'une progression continue néanmoins de se manifester.

Le nombre considérable de cas pour lesquels la source d'infection ne fut pas dépistée, ainsi que les taux relativement élevés d'incidenee des formes syphilitiques autres que la forme infcetieuse récente, indique l'existenee d'un très grand nombre de cas non identifiés dans la phase infectieuse.

Dans le eas de la ville de New York, l'évidenee dont on dispose indique assez nettement que l'augmentation de l'incidence déclarée reflète effectivement un aecroissement réel, et probablement considérable, de l'infection syphilitique. Le schéma des taux géométriques d'augmentation déclaréc de la syphilis infectieuse s'applique à toute la ville, et demeure essentiellement identique pour toutes les souches sociologiques. Les taux d'ineidenee de cas de syphilis tardive-latente, tardive, et congénitale manifestent un déclin appréciable entre 1957 et 1960.

RESUMEN

Entre 1956 y 1957 logramos disminuir la tasa de incidencia de casos infeeciosos entre civiles en los Estados Unidos a 3.8 por 100,000 pero de 1960–1961 la tasa aumentó a 10.4. La tasa de aumento aparentemente ha venido disminuyendo lentamente desde la segunda mitad de 1960, pero en los datos obtenidos recientemente se nota que la misma tiende nuevamente a aumentar.

El hecho de que existe un número considerable de casos de los cuales no se ha logrado averiguar el foco de infección y además debido a la tasa relativamente alta de otras formas de sífilis que no pertenecen a la forma infecciosa reciente, indica que hay gran número de casos no identificados que se encuentran en la fase infecciosa.

En el caso de la ciudad de Nueva York la evidencia indica que el aumento en la incidencia declarada refleja un verdadero y probablemente un aumento considerable en la infección sifilitica. La curva geométrica de las tasas de aumento de sífilis infeceiosa notificada es la misma en toda la ciudad y es casi igual en todas las capas sociales. Las tasas de casos de sífilis latente-tardia, tardia, y congénita demuestran una marcada disminución de 1957 a 1960.

NEARLY 20 years have elapsed since Mahoney introduced penicillin treatment of syphilis in 1943. Since each successful cure of a case of syphilis also involves the elimination of a potential source of infection, the high therapeutic efficiency of the new method, which was soon also extended to gonorrhea, increased tremendously the possibilities of epidemiologic control. Of course, successful epidemiologic control of syphilis depends not only on the effectiveness of therapeutic technique but also on prompt and efficient identification of potential sources of infection. The very substantial amount of success which was achieved in the control of syphilis during the 1940's must be

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attributed not only to the introduction of penicillin therapy but also to intensification of efforts to bring infected individuals to treatment, and to identification of a large number of infected persons through blood testing of selective service candidates (*1*).

Following the end of World War II the reported civilian rate of infectious syphilis in the United States rose substantially from 60.5 per 100,000 for the fiscal year 1945 to 75.6 per 100,000 for the fiscal year 1947. However, this increase in reported rates apparently reflected in large measure factors other than a genuine increase in incidence. According to the Task Force report to the Surgeon General (*1*), this increase was due in part to the return of service personnel who had been overseas, and in part to large-scale blood testing activities in areas where it was expected that many previously unidentified cases of syphilis would be found.

Decline in Syphilis Reported

Following the 1947 peak there was, however, a sharp and fairly consistent decline in the reported incidence of infectious syphilis until a rate of 3.8 per 100,000 for the civilian population was reached for the fiscal year 1957. During the same period there was also a very sharp decline in the reported rate of early latent syphilis. The decline in the reported rate of "other" syphilis (a category which includes late latent, late, and congenital syphilis, and which presumably represents to a considerable extent the effects of previously unreported infections which may in some cases have taken place many years earlier) was less drastic but nevertheless quite substantial.

Increasing Rate Since 1957

Although within the past few years the incidence of reported infectious syphilis has again been on the rise, the fact is that the most recent rates are still very much below the rates for the period immediately preceding and immediately following the introduction of penicillin treatment. Thus, the reported U.S. rate for infectious syphilis for the fiscal year 1961 amounts to less than one-seventh of the corresponding rate for the fiscal year 1947, and to less than one-sixth of that for the fiscal year 1943. Moreover, data reported by the U.S. Public Health Service (*2*) indicate that in recent years there has been a substantial decline in mortality and in first admissions to mental hospitals due to syphilis. The decline in infant mortality due to syphilis has been even more striking.

Nevertheless, the recent increase in infectious syphilis does represent a serious public health problem.

In the first place, there is the fact that the actual number of cases involved is quite substantial. 18,781 new cases of infectious syphilis were reported in the U.S. for the fiscal year 1961, and the indications are that the actual incidence is considerably higher.

Moreover, recent data, both from the United States and from other countries, indicate that over the past few years the reported incidence of infectious syphilis has been steadily rising. For instance, in the case of New York City the reported infectious syphilis rate increased about fourfold from 1957 to 1960, with the increase during that time taking place at a steadily accelerating pace. The most recent New York City data indicate that by 1961 acceleration was no longer evident, and this disappearance of the accelerating trend is probably a function of intensified control efforts. However, the increase from 1960 to 1961 is still very substantial, amounting to nearly 28% of the 1960 rate. In addition to whatever damage this increasing rate of syphilitic infection may be causing to the currently infected individuals, there is also the danger that unless it is effectively checked this increase will augment the reservoir of potential infection. In the case of syphilis it is, of course, precisely during the early stages that the danger of transmission of infection to others is at a maximum.

A further aspect of recent data which has aroused considerable concern—both in the United States and in a number of other countries—pertains to the sharp increase in the reported rates of infectious syphilis among the younger age groups.

Still another consideration which points to the seriousness of the current control problem consists in the fact that although neurosyphilis and mortality due to syphilis have been sharply reduced, they have not—by any means—been eliminated, and that the danger of both still exists in cases which do not come early enough to medical attention.

The nationwide increase in infectious syphilis over the past few years appears to have been less sharp than in the case of New York City but, nevertheless, quite substantial. The nationwide civilian rate for the fiscal year 1961 is 10.4 per 100,000, as compared with the rate of 7.1 for the fiscal year 1960 and with a rate of 3.8 for the fiscal year 1957 (*1*). As in the case of the New York City data, the nationwide

figures also indicate that there has been a slowing down in the rate of increase. The change appears to have taken place during the second half of 1960. However, although the *rate* of increase appears to have been markedly modified, an upward trend is still evident in the most recent data (*1*).

Since, as we shall see presently during the period under consideration the success ratio of epidemiological investigations has been improving, it seems reasonably safe to assume that this slowing down in the reported rate of increase is not attributable to less complete reporting.

Cases Unidentified During the Infectious Phase

There are at least two lines of evidence which indicate that the number of cases of syphilis which remain unidentified and untreated during the infectious phase is very large.

In the first place, there is the large proportion of cases in which epidemiologic investigation has failed to reveal a contact with an infected person as a possible basis for the infection. According to the recent Task Force report to the Surgeon General (*1*), during the second half of 1959 epidemiologic investigations were only 48% successful. During the first quarter of 1961, after an intensified effort at improvement had taken place, the success ratio rose to 65%. Thus, even after this substantial improvement had taken place, the possible source of the infection remained undiscovered in over one-third of the reported cases. (I am using here the phrase "possible source," since the tracing of a contact with an infected person would not necessarily identify that person as the actual source of the infection.) Of course, it is quite possible that some of the sources of infection which were not successfully traced in particular cases did come to the attention of the authorities either through other epidemiologic efforts or through their own efforts to obtain medical attention, and it is also possible that some individuals who remained unidentified during the infectious phase caused more than one infection. For these and still other reasons the percentage of successes in epidemiologic investigations cannot be expected to provide an actual estimate of the number of cases of infectious syphilis at any given time, although these data do indicate in a general way that as recently as a year and a half ago the number of such cases was substantial.

The second source of evidence concerning the large number of cases of syphilis which remain unidentified during the infectious phase consists in the very substantial number of newly reported cases representing early latent syphilis as well as late latent and late syphilis. According to U.S. Public Health Service figures (*1*), the number of cases of early latent syphilis reported during a given fiscal year is typically larger than is the corresponding number of newly reported cases of infectious syphilis, and the number of cases of "other syphilis" is typically larger than either. While the discrepancy between the reported U.S. rates for infectious and for early latent syphilis for 1961 is considerably smaller in percentage terms than is the corresponding discrepancy for any other fiscal year since 1947, the fact is that even the 1961 figures show a slight preponderance of the newly reported early latent over the newly reported infectious cases. Recent New York City data also typically show a preponderance of early latent over infectious cases, although the difference for 1960 is quite small. While year-to-year variations in the number of newly reported cases of early latent syphilis represent a separate problem concerning which something will be said later, the fact that these rates are as high as they are in comparison with the infectious syphilis rates provides a clear indication that a large proportion of cases of syphilis remains undiagnosed and presumably untreated during the infectious phase. Of course, evidence of this type necessarily involves a time lag. Sometimes a year must be allowed to elapse before this method of analysis can be expected to reflect current improvements in case-finding effectiveness.

Validity of the Data on Increased Incidence

In view of this evidence of under-reporting of infectious syphilis, the question can naturally be asked as to whether the recent increases in reported rates of infectious syphilis can be taken as a valid indication of a real increase in the incidence of syphilitic infection. It is, of course, quite likely that the increases in the reported rates are to some extent a function of intensification of case-finding efforts (as distinguished from a real increase). While the precise contribution of this factor would be difficult to estimate, evidence about to be reported seems to indicate that to a very substantial extent the reported rates of infectious syphilis do reflect a real increase.

If the recent increase in the reported incidence of infectious syphilis were merely a function of increased efficiency of case-finding, one

would expect the reported rates for early latent syphilis either to show a parallel increase during the same time period or else to show an initial parallel increase followed by a drop. The expectation of a substantially parallel pattern would follow if it is assumed that the level of efficiency of case-finding is relatively low, and that in a substantial proportion of cases the disease is allowed to progress into the latent phase. The expectation of an initial increase followed by a drop in the early latent cases would follow if it is assumed that the efficiency of case-finding is sufficient to check successfully a large proportion of cases in the infectious phase. On this latter assumption the initial increase in the reported rates for early latent syphilis would presumably reflect a carry-over from the preceding years when the efficiency of case-finding was lower or a larger number of cases was unchecked in the infectious phase. However, as the reservoir of older cases becomes exhausted, and as an increasing proportion of cases is cured in the infectious stage, one would expect the reported (as well as the actual) rates of early latent syphilis to drop.

The actual empirical data differ markedly from either of these theoretically expected patterns. For instance, figures which have been made available through the cooperation of the New York City Department of Health indicate for many of the city's 30 health districts the 1960 rates for reported cases of infectious syphilis are considerably higher than are the corresponding rates for 1957, and that the 1960 rates for newly reported latent syphilis are also on the average substantially higher than are the corresponding rates for 1957. However, in contrast to the pattern which would be expected if improved case-finding were the crucial factor, the increase in the reported rate for early latent syphilis actually lags more than two years behind the increase in the reported rate of infectious syphilis, with most of the increase in reported early latent syphilis occurring between 1959 and 1960. This time lag is approximately what would be expected on the assumption that the reported figures for infectious syphilis represent in large measure a real increase and that, corresponding to the reported increase, there was also an increase in the early part of the period beginning with 1957 in the number of cases which were not reported or not treated during the infectious phase. Thus, at least insofar as the New York City data are concerned, the evidence suggests strongly that the increased reported incidence reflects a real and probably very substantial increase in the incidence of syphilitic infection.

It may incidentally be noted that the rates for the late latent, late, and congenital cases of syphilis show a marked decline from 1957 to 1960. Thus, even with the improved methods of case-finding, the decline in the longer range effects of syphilis appears unmistakable.

A Comment on the Reported Rates for Congenital Syphilis

It should be noted in this connection that only a very small proportion of the newly reported cases of congenital syphilis in New York City consists of individuals who are less than one year of age, and that there are, in fact, very few cases under the age of 15. Since by definition congenital syphilis is a condition which is already present at birth, and since it may well be a consequence of a parental infection which had taken place years earlier, the congenital syphilis rates can properly be regarded as representing primarily long-range effects of syphilitic infection, more comparable in this respect to late latent and late than to infectious or even to early latent syphilis.

The City-Wide Character of the New York City Increase in Infectious Syphilis

In closing I should like to comment briefly on another aspect of New York City data. As previously noted, the New York City rates for reported cases of infectious syphilis show a very sharp increase over the past few years and, for reasons which have already been elaborated, these increases in reported rates can probably be taken as representing to a considerable extent a real increase. At the same time, when the data for any one year during this period are considered separately, there is a wide range of variation in the reported infectious syphilis rates among the five boroughs and among the 30 health districts into which the city is divided. However, although there is, of course, some borough-to-borough and district-to-district variation in the extent of the increase which took place from 1957 to 1960, the 1960 rate was higher than the 1957 rate in 29 out of the 30 districts. (The Borough of Richmond, which in itself constitutes also a health district, provided the only exception to the generally rising trend.)

Moreover, the geometric rates of increase for districts whose 1957 rates were quite low were just as high or higher than for some of the areas where the 1957 rates were high. The

absolute rate of increase tended to be higher for the areas which were initially high, but the relative rates of increase, which seem to be more meaningful in the present context, were of essentially the same magnitude for both. Thus, whatever may have been the reasons for the initial differences among the health districts in the reported rates of infectious syphilis, the geometric pattern of increase appears to be a city-wide phenomenon and to be largely independent of these local differences. This finding suggests that the factors responsible for the increase are not confined in their operation to any one ethnic or socio-economic group.

References

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Standards and Values of Youth

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ABSTRACT

Whatever standards and values youth has, it has acquired them from adults. Because most societies are dedicated to the pursuit of profits, often at the expense of human potential, rather than to the highest development of youth, it is the bad influences that seem to travel faster and farther than the good ones.

As an example, youth reflects adult attitudes in viewing education as a means to material success rather than as a way to enhance their potential and facilitate more socially useful contributions on their part.

If youth becomes precociously involved in sex, it is because they are subjected to a barrage of sexual stimuli that verge on the pornographic.

What is surprising is that the rates of illegitimacy and V.D. have not increased more than they have.

The outlook of today's youth has been summarized as: "To lose one's identity within the pattern of one's contemporaries, to seek the haven of a steady job rather than personal achievement, to prize material possessions above abstract principles—these may be the best available safety rafts in an insecure world."

Our culture also fosters "an absolute, unthinking disregard for the conditions of daily life under which the vast majority of the human race is struggling to exist."

Much of youth's activity today is casual and random. Today's culture is the product of deterministic psychology that underrates the integrity of human nature; of rapid technological changes that have reduced opportunities for early and satisfying work experiences for youth; and of many other elements.

SOMMAIRE

Quelles que soient les normes et valeurs de la jeunesse, elle les a acquises des adultes. Parce que la plupart des sociétés sont vouées à la poursuite des bénéfices—souvent aux dépens du potentiel humain—plutôt qu'au développement le plus exalté de la jeunesse, ce sont les mauvaises influences qui semblent aller plus vite et plus loin que les bonnes.

Pour citer un exemple, les jeunes reflètent les attitudes de leurs aînés lorsqu'ils considèrent l'instruction comme un moyen d'aboutir à la réussite matérielle plutôt qu'un chemin menant vers l'élévation de leur potentiel et une aide à façonner une contribution d'une haute valeur sociale.

Si la jeunesse s'engage prématurement dans les relations sexuelles, c'est parce qu'elle est soumise à un barrage de stimulants sexuels qui avoisinent la pornographie. Ce qui est surprenant, c'est que le nombre de naissances illégitimes et de cas de maladies vénériennes ne soit pas plus élevé qu'il ne l'est.

Le point de vue de la jeunesse d'aujourd'hui a été résumé de la façon suivante: "Perdre son identité dans l'ensemble de ses contemporains, chercher l'asile d'un emploi régulier plutôt que d'aspirer à l'accomplissement individuel, attacher un plus grand prix aux possessions matérielles qu'aux principes abstraits—voilà peut-être les radeaux de sauvetage les plus sûrs qui se puissent trouver dans un monde d'inséeurité."

D'autre part, notre culture engendre "un mépris absolu, irréfléchi, des conditions de vie quotidienne dans lesquelles la vaste majorité de la race humaine mène la lutte de l'existence."

Une grande partie de l'activité de la jeunesse d'aujourd'hui est nonchalante, menée au hasard du moment. La culture contemporaine est le produit de la psychologie déterministe, qui sous-estime l'integrité de la nature humaine; des transformations technologiques rapides qui ont rétréci le champ des possibilités, d'expériences laborieuses pouvant procurer de bonne heure une satisfaction à la jeunesse; et de bien d'autres éléments.

RESUMEN

Cualesquiera que sean las normas morales y los ideales que tenga la juventud, los abtuvo de sus mayores. Debido a que la mayoría de las sociedades se dedican a la consecución de ganancias, a menudo a expensas del poteneial humano, en lugar de a la consecución del mayor grado de desarrollo de la juventud, parece que son las malas influencias las que se transmiten más rápidamente, y a mayor distancia, que las buenas.

Se puede citar como un ejemplo el hecho de que la juventud refleja la conducta de sus mayores en el aspecto de la educación, viendo a ésta como el camino hacia el éxito material, y no como el medio para aumentar su potencial y ofreeer de su parte una contribución que sea más útil a la sociedad.

La razón por la que la juventud se mezcla en cuestiones sexuales a una temprana edad, es que está sujeta a una andanada de estímulos sexuales que casi llegan a scr pornográficos.

Lo que es sorprendente es que los porcentajes de ilegitimidad y de enfermedades venéreas no han aumentado más de lo que lo han hecho.

Las perspectivas de la juventud de hoy en día se resumen así: "identificarse dentro de las normas de sus contemporáneos; buscar el amparo de un trabajo permanente, en vez de éxito personal; poner mayor valor en cuestiones materiales que en principios abstractos—en un mundo inseguro, puede que sean éstos los mejores salvavidas disponibles."

Nuestra cultura también resguarda "una omisión absoluta e impensada de las condiciones de vida cotidianas, bajo las cuales batalla por existir la gran mayoría de la raza humana."

Hoy en día, las actividades de la juventud son accidentales y de azar. La cultura de hoy en día es el producto de la psicología determinística que avalúa en poco la integridad de la naturaleza humana; los rápidos cambios tecnológicos que han reducido las oportunidades para que la juventud pase por experiencias del trabajo tempranas y satisfactorias; y de muchos otros motivos.

HIGH STANDARDS and values are transmitted to the young in the same way that low ones are. Accordingly, if the prevailing standards and values are not what we wish them to be, it is to the adult world that we must look for their source. It is to the adult world that we must look for their improvement—with the help of youth. While in this paper I am referring chiefly to the American scene, there is much that has general applicability to other societies, for today's mass media of communication and entertainment leave no country immune to outside influences. And because most societies are dedicated to the pursuit of profits—often at the expense of human potential—rather than to the highest development of youth, it is the bad or unhealthy influences that seem to travel faster and farther than the good or healthy ones. It does little except to obscure the problem and solutions thereto, to berate young people for what is frequently described as their *lack* of standards and values, when in actuality they are reflecting with frightening reality the standards and values of the adult society that are applauded and receive our society's highest rewards in prestige, material gain, and power. What is needed—if we are interested to raise the level of today's standards and values—is to make it possible for young people to select alternative values and standards. This opportunity is not now provided.

I thoroughly agree with Allen Wheelis, a sensitive psychoanalyst concerned with the individual's search for identity, when he refers to statements about the "collapse of values" as both undocumented and unchallenged for, as he puts it, "values are legion. . . . Values are products of the life process and coextensive with this process. They do not exist in a void, but are engendered by the activities of men." In other words, what we are seeing today is not so much an absence of values as a commitment to values that are superficial and antisocial. Moreover, according to Wheelis, "value is a product of sustained and purposeful activity, rather than casual and random activity" (*1*).

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Education

If a majority of today's youth view education as the means to material success rather than as a way of enhancing their potential and facilitating a greater and more socially useful contribution on their part, this is because education no longer has this meaning in adult American society. Despite our efforts currently to idealize the goals of education, parents are loath to have their children enter fields that are neither glamorous nor lucrative in rewards of today's currency: prestige, material wealth and power. Also, our colleges and universities continue to be operated more as business establishments than as institutions of learning. Valued professors are shoved into corners while young enterprising assistants, little different from the young men in grey on Madison Avenue, are moved up to the all too few positions and offices of influence in higher education worthy of educational institutions. A visitor to our country cannot help but be struck—as I am so frequently—with the contrast between the cramped untidy and thoroughly dismal offices of college professors and the artistic, truly beautiful and functional offices of our banks and advertising establishments. Is this accidental?

If youngsters at 11 and 12 are precociously and dangerously interested in sex—a depersonalized sex—and are permitted, without adult supervision or guidance, to be thrown together in intimate physical contact with the opposite sex through social dancing, parties, "going steady," for example, and hence become prematurely involved in sexual experimentation and gratification before they have either found themselves as individual persons or have a conception of sex as playing an important role in interpersonal relations and the family, this is because we have subjected today's youth to a barrage of sexual stimuli and to models of sexual behavior on the part of adults that verge on the immoral and pornographic. Is this, too, accidental—or has this become big business, especially when the published lists of high school graduates in local papers become the mailing lists for pornography on the lowest level?

Illegitimacy and High V.D. Incidence

It should occasion no surprise then if the rate of illegitimate births has increased far out of proportion to the legitimate birth rate; if venereal disease incidence has greatly increased at a time when a specific, effective and inexpensive therapy is available; rather it should occasion surprise that both these phenomena are not occurring among adolescents more frequently. As I wrote in the published report of the study, *Teen-Agers and Venereal Disease: A Sociological Study*, "It is one of the paradoxes of twentieth century culture in the United States that while interest in and concern about sex have greatly increased, knowledge about sex in the sense of understanding its meaning and relation to life has not increased appreciably" (*2*). Experts themselves have conflicting views, with a majority hesitating to take a stand. With little support from adults for self-control as well as for the postponement of short-range immediate gratification for long-range, more lasting satisfaction, is it any wonder that so many marriages of today's youth are not only premature, but also tend to become short-lived or, in many instances, serial marriages in which all too little has been invested except that of self-gratification. The late James S. Bossard, a sociologist with a point of view, stressed what is so often overlooked, namely that sex in marriage is more than physical attraction. It is "a deep pervasive achievement often made slowly and on the basis of many factors. It involves a deep rapport between two people, the sort that can come only with mutual respect, understanding and a sharing of common interests and it is something quite different from the sentiment engendered by a trim ankle, a chic look or a conspicuous bosom" (*3*).

Emphasis on Conformity

While, on the one hand, parents, along with teachers and even some religious leaders have tended to push youth into adult forms of self-indulgence, of which the sexy clothes, adult hairdos including the purchase of wigs, the dyeing of hair on the part of young girls and the tight-fitting pants of the boys are but the external trappings, they have not encouraged youth to engage in activities which would not only give meaning to their lives and facilitate their search for identity but provide the basis for their selection of alternative values and standards. The endless pursuit of happiness—a boring, useless and stultifying goal—does not lead to happiness. It has been aptly described as "the happiness rat race." Why is this? How has this come about? It is only partly due to parents' concern with being popular with their children and being modern in the sense of not frustrating their children. Parents have been intimidated by the empty phrases "everyone is doing it"; or "everyone has it." Even social scientists have aided and abetted this intimidation of adults on the part of adolescents by writing of a so-called "teen-age culture" as if it had an existence apart from the adult culture and were not a creature thereof.

It is, therefore, surprising that one of the exploiters of teen-agers as well as one of the architects of the "teen-age culture" myth should have a realistic understanding of the differences between today's youth and that of previous generations. Disclaiming any expert knowledge of youth either as a sociologist, a teacher or parent, Eugene Gilbert's observations are worth noting: "For fifteen years I have been carrying on an intensive study of the adolescent in a role where he is most distinctly himself—as a consumer." It is interesting that he does not hesitate to make clear that we are living in a distinctly commercial culture, else how could this kind of exploitation occur?

Pointing out that the overwhelming experiences for adults in their late thirties, forties and fifties were the Depression and World War II, he describes these as "dim, irrelevant periods" for today's youth, and poses the following question: "Is there not a certain crude logic in hastening the growing up process in the shadow of the atom and hydrogen bomb? What meaning have 'patriotism,' 'peace,' and the other slogans of a bygone idealism when the dilemma that faces us is not a matter of winning a war, but survival?" Accordingly, to adults dissatisfied with the younger generation, Gilbert suggests that "instead of bemoaning the queer ways of their young, it might be more useful to take a hard look at the society in which they are growing up. After all we made it for them." He interprets the pressures toward conformity with the peer group as follows: "To lose one's identity within the pattern of one's contemporaries, to seek the haven of a steady job rather than personal achievement, to prize material possessions above abstract principles—these may be the best available safety rafts in an insecure world" (*4*).

What Gilbert does not make clear is that he and others like him have, according to Harvey Swados, sold youth a bill of goods:

> The quest for security and personal certitude has been converted by the unremitting pressure of advertising, as well as by the exigencies of a culture which places a premium on the acquisition of goods, into a conclusive rush on the part of people barely out of their teens to live as their parents would rarely have dreamt of living after a decade of marriage.

Swados also notes that our culture fosters "an absolute, unthinking disregard for the conditions of daily life under which the vast majority of the human race is struggling to exist." His message to youth needs underscoring: "You do not, in the new age in which we are entering, need a set of ideals worth dying for. You do need certain values worth living for, beyond those of cynical nihilism on the one hand and greedy grubbing for gadgets on the other" (*5*).

Unfortunately, the above are trends in our culture that are all the more deeply imbedded because extremely profitable and, in addition, serve to bolster artificially an economy that to many observers of the American scene has outlived its social usefulness. Discussing the serious lack of employment of any kind for youth and, in particular, meaningful employment, Paul Goodman states that "in our society as it is, there are not enough worthy jobs. . . . Our society, which is not geared to the cultivation of its young *is* geared to a profitable expanding production, a so-called high standard of living of mediocre value. . . . But by and large our economic society is *not* geared for the cultivation of its young or the attainment of important goals that they can work toward" (*6*).

Goodman is confirming what Wheelis implies in his definition of values as products of "sustained and purposeful activity, rather than casual and random activity," cited above. But how does it happen that so much of youth's activity today is casual and random? For the answers to this question we need to go back some fifty years.

Post World War I Disillusionment

Since World War I we in America have been drifting toward a psychology of man as a creature of primitive sex drives and a prey to irrational emotional forces over which he has little or no control. We have also been drifting away from the ideals and goals of American democracy and concern for our fellow Americans, in particular those denied the equality of opportunity that is an integral part of the ideals for which our country stands. It is not surprising that these two trends should have had their origins in the post-World War I period when cynicism about going on with democracy's unfinished business was at its height. The war followed a tremendous social reform movement in which the links between big business and politics were exposed in the popular periodicals of the times; in which the ruthless ways in which the great American fortunes had been amassed were vividly described by Gustavus Myers (*7*). According to Vernon Parrington, the widespread feeling was that nobody wanted social justice. He summed up the disillusionment and despair of the period as follows: "The first want of every man as John Adams remarked a hundred years ago, is his dinner, and the second, his girl. . . . If the mass—the raw materials of democracy—never rises above sex appeals and belly needs, surely it is poor stuff to try to work up into an excellent civilization" (*8*).

Freud Theories Accepted Uncritically

It was in this atmosphere that Freud's theories were widely and uncritically accepted and, according to Jane Addams, popularly interpreted as if sex were the whole content of life. In particular, Freud's theories about the dangers of repression "were seized upon by agencies of publicity, by half-baked lecturers and by writers on the new psychology and finally interpreted by reckless youth as a warning against self control." She described the period as one in which American policies were being directed by "the panic-stricken and by those skeptical of the essential integrity of human nature itself" (*9*). Thus were born the permissive trends in child rearing that aroused fear of instituting controls in children lest this lead to neurosis. That lack of controls generally and in sex have not seemed to lessen the amount of mental illness is frequently overlooked.

Kinsey Reports—An Impetus to the Sex Revolution

In light of these trends, together with the unprecedented and rapid technological changes that have reduced the opportunities for early and satisfying work experiences for youth; the impact of a peace-time draft—the first in our history; the mobility of families; the increased

leisure; the automobile and lack of adult supervision in the home and outside; it is not surprising that the Kinsey reports provided a compelling impetus to the sex revolution. Their description of sex in terms of "outlets" and "frequencies," provided sanctions for a continued over-emphasis on a casual and depersonalized sex. Kinsey's influence has been all the greater because of the tremendous publicity—unusual for a scientific work—and because of his stated objectivity, a kind of objectivity that Robert Lynd in *Knowledge for What?* (*10*) decried as "aloofness from the strife of rival values." This so-called objectivity which assumes that the scientist can observe human behavior without a point of view, as if all kinds of behavior have the same value, has made it acceptable for the individual, rather than the family and society to decide his own sex standards. Under these conditions *what is* is made to appear synonymous with *what should be.*

What Can Be Done?

Need for Study of Healthy Normal Maturing Adolescents

What can be done? As I have suggested in an article entitled "Needed: a New Kind of Kinsey Report," which was solicited by the editor of *This Week Magazine* on the basis of the published study, *Teen-Agers and Venereal Disease* (*11*), we should begin to pay more attention to adolescents who are quietly going about the business of maturing without unhealthy and dangerous entanglements with sex. By studying such youth over a sufficiently long period, we may gain clues as to whether control of the sexual drive inevitably involves emotional disturbance—as many claim. We may also learn whether early sexual gratification, as is currently proclaimed, prepares youngsters for a better marital adjustment and social adjustment generally, or whether it constitutes a handicap. The proposed study, an exploratory phase of which I am in process of designing, would, I think, provide support for those parents who are troubled by the emphasis on sexual activity at an even earlier age and who are at a loss to get help from school or church in providing opportunities for youth to get to know members of the opposite sex as individual human beings in groups engaged in the myriad of activities, exploratory, educational and cultural that help youngsters to find themselves, their talents and capacities.

I am aware that the sex revolution has done much to dispel the negative controls of an earlier era. It has not, however, replaced these with positive ones. Nor has it brought with it the kind of education about sex at an early age that is essential but still denied youth in school and, to a large extent, in church. It is not enough to say that this is a responsibility of the family, when we all know that the family has become less a center of either work or play as in the past. As Raab and Selznick put it, "being a member of a closely knit, integrated family and community no longer has the same value for the individual it once had." Moreover, they make clear that we have today conflict between sets of values and when "two sets of values impinge on the individual, his acceptance of either is apt to be weak, ambivalent, and confused. . . . Family standards of morality may be weakened as the child comes into contact with other attitudes and ways of behaving." Even more important is their observation that "it is difficult to instill moral standards when virtue goes unrewarded. In our society there is a tendency for emphasis on success to outweigh emphasis on means of achieving. Dishonesty, breaking the law, and violence are often rewarded by power, prestige, and money" (*12*).

Need for Positive Community Action To Raise Standards and Values

A community wishing to take positive—not punitive—action whether concerned about antisocial behavior, illegitimate parenthood or venereal disease on the part of youth would need first to make a critical and honest appraisal of the prevailing influences on the standards and values of children. They would need, in addition, to look squarely at the unsolved social problems around them, and the attitudes of adults with respect to solutions to these. Do most of the adults have an attitude of discouragement, disillusionment, disinterest, helplessness or apathy with respect to solving these problems? Are they even aware of them? There is no community today not affected by national and international problems; no community without its pocket of serious poverty, all the more senseless because so unnecessary in the world's richest country (*13*); no community not plagued by discrimination on the basis of color, religion, income or social status. There are no young people not seriously influenced by the continued nuclear testing which brings us closer to the possibility of an accidental nuclear explosion or war. If adults are doing little or nothing about these problems, how can adolescents identify with adults especially when, as already indicated, the standards

and values of the adults leave much to be desired? This can only have a destructive impact on youth who see through sham and hypocrisy.

Until more adults are no longer helpless, apathetic, and resigned to a view of human nature as "more or less predestined to be antisocial and destructive, if not by original sin, by other innate and unavoidable characteristics . . .;" until more adults are no longer committed "to a conception of society and culture as part of the cosmos, as something fixed and unchangeable, to which man must passively submit . . .;" little improvement in the standards and values of youth can be expected. Lawrence Frank, from whose writing the above citations were taken suggests that "if the new understanding of man's origin and development, of his immense capacities and, above all, of the amazing flexibility of human nature and its patterning by social life and culture, have any social significance, they point to the realization that, despite the age-old belief in man's complete helplessness in the face of superior forces and powers, he can, if he will, take care of his destiny and begin to create the kind of culture and the kind of group life that is dedicated to human needs and values" (*14*).

The fact that so many of today's youth reflect high standards is testimony to the innate potential for good in human beings. What we need is confidence and skill in ways of utilizing this potential to match and surpass the techniques by which man's potential for evil is currently being exploited. There is reason to believe that the increased rates of venereal disease, accompanied by comparable increases in illegitimate parenthood and other types of deviant behavior on the part of youth, are causing concern and are stimulating programs of sex and family life education, both religious and secular. It is to be hoped that these will be augmented by efforts to raise standards and values in all aspects of American life, for the low standards in sex are but one facet of the lowered values reflected in our public and private life generally.

More than a decade ago I wrote about the problems of children many of which, if solved in the intervening period, would, I think, have been manifested in a lowered incidence of the deviant behavior just described. I ended that article in a manner that is most appropriate for this topic: "We always plead we do not have all the facts—and in times of crisis this is more than likely to be the case. That is one of the risks involved in the possession of knowledge and the intelligence to use it. As Barrows Dunham put it, human beings in their attempts to control the world around them are locked within two limits. They must, on the one hand, not act before knowledge is acquired; but, on the other hand, they must act before opportunity vanishes. These limits are at all times narrow, and sometimes desperately so" (*15*).

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How People Get Information About Venereal Disease

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ABSTRACT

The African countries are undergoing rapid social, economic, and political changes. A WHO Expert Committee in 1959 reported that V.D. was on the increase in many countries. Rapid urbanization of African towns has had a great effect on the incidence of gonorrhea, which is spreading widely through semi-urban areas.

In view of the relaxed and less moralistic attitudes to V.D. in general, and gonorrhea in particular, children and adults talk freely about it. Education has removed the age-old ignorance about V.D., and people, especially the educated elite, are aware of its social and moral implications and have taken energetic steps to check its ravages.

Health education in many African and Asian countries where V.D. control is active is carried out by means of village talks, films, shows, pamphlets, by posters warning of the dangers of loose conduct and giving advice as to prophylaxis. These talks are addressed to different groups, such as children over 15 years of age, young farmers, teachers, elders, expectant mothers, soldiers, etc. The nature, intensity, or depth of information depend upon the people in the group.

Presentation of information must be appropriate for its audience, especially in rural areas, and information must be related to other interests of the people.

Teachers of health are important also. In addition to health workers and doctors, it has been found that the priest, the pastor, the teacher, and the village chief could play a most valuable role. Experience in Africa has shown that the effects of such personal communication last longer than all the results of mass communication media.

Medical treatment centers, including mobile clinics, also act as agents for effective health programs.

SOMMAIRE

Les pays d'Afrique sont en train de subir une rapide transformation sociale, économique et politique. En 1959, une commission d'experts de l'OMS déclara que les maladies vénériennes étaient en augmentation dans beaucoup de ces pays. L'urbanisation rapide de villages africains a beaucoup influé sur la fréquence de la blennorhagie qui est en train de se répandre largement dans les régions demi-urbaines.

L'attitude à l'égard des maladies vénériennes en général et de la blennorhagie en particulier n'étant pas dictée par une morale rigide, jeunes gens et adultes en parlent librement. L'instruction a fait disparaître l'ancienne ignorance concernant les maladies vénériennes, et la population, l'élite instruite surtout, a conscience de leurs implications sociales et morales et a pris des mesures énergiques pour curayer leurs ravages.

L'enseignement de l'hygiène, dans de nombreux pays d'Afrique et d'Asie où la lutte antivénérienne est active, est effectué dans les villages au moyen de causeries, de films, de représentations, de brochures, d'affiches avertissant des dangers d'une trop grande liberté de moeurs et donnant des conseils de prophylaxie. Ces causeries s'adressent a divers groupes tels que les jeunes de plus de 15 ans, la jeunesse paysanne, les instituteurs, les anciens, les femmes enceintes, les soldats, etc. La nature, l'intensité et l'étendue de l'information dépendent de la composition du groupe.

La présentation de l'information doit être appropriée à l'auditoire, en particulier dans les régions rurales, et l'information doit avoir un rapport avec des questions qui intéressent la population.

La personnalité de ceux qui enseignent l'hygiène a également de l'importance. En plus des instructeurs professionnels et des médecins, on a constaté que le prêtre, le pasteur, l'instituteur et le chef du village pouvaient jouer un rôle très précieux. L'expérience a prouvé qu'en Afrique, les effets de ces moyens personnels de communication étaient plus durables que tous les résultats de moyens collectifs de communication.

Les centres de traitement médical, y compris les cliniques ambulantes, sont aussi les agents de programmes sanitaires efficaces.

RESUMEN

Los paises africanos están pasando por rápidos cambios de carácter social, económico y político. En 1959, un Comité de Expertos de la Organización Mundial de la Salud, informó que las enfermedades venéreas iban en aumento en muchos paises. La rápida urbanización de las poblaciones africanas ha influido grandemente en el área de incidencia de la gonorrea, la cual se esparce abiertamente por los suburbios.

En vista de la postura despreocupada y poco ética hacia las enfermedades venéreas en general, y a la gonorrea en especial, niños y adultos hablan liberalmente acerca de ellas. La educación ha acabado con la eterna ignorancia acerca de las enfermedades venéreas; la gente, especialmente en las esferas altas, se da cuenta de las implicaciones sociales y morales que pueden acarrear, por lo que ha tomado medidas drásticas para controlar los estragos que ellas causan.

En muchos paises africanos y asiáticos donde se ha puesto en acción el control de las enfermedades venéreas, la instrucción sanitaria se lleva a cabo por medio

de conferencias en las villas, películas, presentaciones públicas, panfletos, además de anuncios previniendo el peligro que acarrea un comportamiento personal liberal, y dando consejos en cuanto a la profilaxia. Estas conferencias se dan a diferentes grupos, formados por, digamos, muchachos de más de 15 años de edad, campesinos jóvenes, maestros, ancianos, mujeres en cinta, soldados, etc. La naturaleza, intensidad y profundidad de la información que se dé, depende de las personas involucradas en cada grupo.

La diseminación de la información debe estar a tono con la audiencia, especialmente en el campo; toda información debe relacionarse con aquéllo que interese a los oyentes.

Los instructores de sanidad son también de importancia. Además de los sanitarios y médicos, se ha comprobado que el clero, el pastor, el maestro y el jefe de la villa, juegan un papel muy importante.

Las experiencias de Africa han demostrado que los efectos de tal comunicación personal duran más tiempo que todos los resultados de los órganos de comunicación en masa.

Los centros de tratamiento médico, incluyendo las clínicas rodantes, sirven también como agentes para los programas de sanidad eficaces.

THIS PAPER is based on our experience in African countries which are undergoing rapid social, economic and political changes. Most of our people still live at subsistence economic level, health conditions are poor, and the degree of illiteracy is very high.

Pathological Effects of Social-Economic-Political Changes in Africa

In Africa today, scarcely a year passes in which the social conditions of life, the modes of conduct, the very habits and amusements, are not subtly and yet surely altered. We stand bewildered at the shattering of what we had considered the most firmly established assumptions concerning the African family structure. We see and treat day after day people from rural areas whose emotional structure renders them unfit to survive the discipline and rigours of urban life. The destruction of tribal traditions, the general weakening of family ties and the social disintegration, consequent upon industrialisation and population mobility have led to alcoholism, crime, prostitution, high incidence of venereal disease and much emotional disturbance in some areas.

Nothing Is Static

Among the urban communities in tropical countries syphilis, gonorrhoea, soft sore and venereal granuloma are exceedingly common. In many of these areas there also exists a non-venereal Treponematoses—yaws. Improved standard of living and eradication campaigns have led to the almost disappearance of yaws in many parts of Africa.

Rapid urbanization of African towns has had a great effect on the incidence of gonorrhoea which is now more widely spread through the semi-urban areas of Africa. Alcoholism, sexual promiscuity and prostitution—overt manifestations of social pathology in contemporary Africa—have greatly contributed to the increase. The rural areas in Africa are still comparatively free, but in many cases these districts are gradually being encroached upon.

Patrol beside army barracks, visit the club houses, hotels, public dance halls, public houses, the streets of shanty towns, labour camps and new industrial settlements at any time of the day and you will be inclined to accept what goes on as a distress signal that all is not well with some of the contemporary societies of Africa. There is no doubt that with the changing social conditions, especially in larger towns, we are losing the strong authoritarian home influence and home training which would seem to be the best safeguards to preserve the young against the temptations and dangers which beset their path in life. This, then, is a sketchy picture of the situation in Africa.

Legislation as a Means of Informing People About V.D.

Now, let me come to the subject of my paper—how people get information about venereal disease. Firstly, I should like to dispose of the less known ways of informing the public before dealing with the more orthodox and practical ways of disseminating the knowledge among the general public. One of the less practical ways of how people get to know about venereal disease, especially in western countries, is through legislation and bills. Before the First World War there had been useful legislation, as, for example, the English Police Bill for the suppression of those vile souteneurs, who act as middlemen, living on the earnings of wretched women. In Esthonia notification and treatment were made obligatory in 1927 and this example was followed by many European countries. During the war, the control of venereal diseases in England was helped

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by a Defense Regulation which forced a person suffering from venereal disease to submit to examination and/or treatment. Recently, also in England, the Private Member's Bill was introduced. This has been due to the consternation about the present increasing incidence of venereal diseases. This Bill re-introduces the old Regulation and a Private Member's Bill provides for the compulsory examination and treatment of person or persons suspected to be suffering from any form of venereal disease. Various methods have been taken by many countries in the past—state medical control, control by regulation, abolitionism, social insurance in Germany, also the Marriage Health Act of 1935 in Germany.

Health Education

In the light of our experience in Africa, the most effective and more practical way of getting this information across to the general public is through health education. This has been planned differently in various countries but the participants at all levels include national, international, governmental and voluntary organizations of various types and functions. It is gratifying to know that much has been done and still being done in many parts of the world to spread the gospel of hygiene in relation to this social malady but further progress will require a great increase in international cooperation.

There is a great deal of ignorance regarding venereal disease in all parts of the world. Many people do not know how to recognize the dangers of infection, and how these dangers affect society, the family, and the immediate neighbours of the patients. In some parts of Africa gonorrhoea infection is regarded as an important factor in the process of growing up of an adolescent male. Even though it is regarded as a disease, the attitude towards it is much more permissive, especially among the males. So permissive is the attitude and so common is the disease regarded in its incidence that all forms of rheumatism and other joint and supporting tissue (collagen) disease are nearly always regarded as manifestations of a typical gonorrhoea infection. Obviously, the disease cannot be of great moral issue among some African tribes. It is, however, a social problem as they all testify to its dreadful scourge and its crippling effects.

In contrast to this is the rigid, moralistic and punitive attitudes of the western culture. Consequently, the issue is never discussed rationally, objectively and dispassionately if discussed at all. In fact it is a taboo subject in many western homes and the children are left to pick up fragmentary information and indirect references from papers, books, magazines, and from acquaintances. Many schools treat the subject in the same way and many parents, for lack of courage and adequate knowledge, prefer to bury their heads in the sand, hoping for the best.

In view of the relaxed and less moralistic attitudes towards venereal disease in general and gonorrhoea in particular, in Africa, children and adults talk freely about it. The spread of education in Africa has removed the age-old ignorance about venereal disease and people, especially the educated elites, are aware of its social and moral implications and have taken energetic steps to check its ravages. It is now believed that the most effective way to eradicate or at lease reduce the incidence of the disease, thereby saving an incalculable amount of sorrow and suffering, is to facilitate the ways and means of getting information about venereal disease across to the general public—the homes, work-places, schools, sports clubs, army and navy, etc.

People, now-a-days, obtain information about venereal disease through proper health education and anti-venereal propaganda, through tracts, notices, radio, television, newspapers, leaflets, lectures, etc., at various levels of society but unfortunately most of these methods of mass communication have not had profound or desired results. Many churches have abandoned the usual approach of dwelling upon the threats of punishment in this world and the inconceivable destruction in the next and have developed a more pragmatic approach to this human problem.

Anti-Venereal Disease Campaigns

Intensive and extensive anti-venereal campaigns through mass communication media and other more personal methods (doctors, health workers, nurses, etc.) have done a great deal to drive home to the people the necessity of getting adequate and right information about venereal disease. It would seem necessary here to elaborate further on the use of the words "adequate" and "right" information. Our experience in Africa has shown how disastrous it can be to give inadequate information on any endemic disease, especially syphilis. It is equally disastrous to give as authoritative information untested data or uncritical and un-

digested views. In many western countries, the public has become so enlightened and information is now so readily accessible and widely diffused that the difficulty is not one of handling the subject, but of gauging the extent to which the subject should be ventilated in many of the available channels of disseminating information. The whole concept involves the principles, methods and media of health education not only of the general public but also of the patients. We must, however, be careful of overplaying our hands.

Village Health Education Programs

Health education in many African and Asian countries where venereal disease control is in its active phase is carried out by means of village talks, films, shows, pamphlets, by posters warning people of the dangers of loose sexual conduct and giving advice as to prophylaxis (including extra-genital or nonsexual mode of infection) in public welfare centers, workshops, factories, army barracks, sports clubs, public houses, market places, fairs, outpatient departments of all hospitals, port canteens, plays,[1] etc., addressed to different groups, such as school children over 15 years of age, young farmers, teachers, elders, expectant mothers, soldiers, etc. The nature, intensity or depth of information depend upon the structure of the group. On the whole, the kind of information given varies from the nature and sociology of the "vectors" to the common manifestations of the disease and its medical and social consequences. Without adequate information, covering the most intangible aspects, we have discovered that some people would have been unaware of the seriousness of the first local sore which is usually painless and whose grave character might well not have been suspected.

Evil By-Products of Social Disorganization and Rapid Urbanization

Prostitution and sexual promiscuity, as well as incidence of alcoholism, homosexuality, drug addiction, delinquency and crime, have been found by us in our surveys in Africa to be related to or associated with social disorganization, economic depression and low standards of living generally.

Young girls migrating into cities and large towns in Africa looking for wage labour are particularly vulnerable. Large scale migration, without adequate or proper social and technical infrastructures, have played a part of increasing importance in the epidemiology of venereal diseases. Small isolated African villages, which present no features of interest or attraction for tourist and the seasonal worker, remain the spots in which simple and healthy customs still prevail. Such places are becoming rare in Africa and Asia. Large constructional undertakings, e.g., railways, motor roads, electrical and industrial installations, bridges, etc., have brought workers, usually temporary bachelors, from towns who may carry infection. These facts, well and simply presented to educated groups, such as teachers, politicians, industrialists, doctors and other professional groups, and college students, have had a profound effect upon the people.

In our experience, some people can recognize the most common features of the infection, including its virulent forms, especially of venereal syphilis but what most people seem ignorant of are the sequelae, especially that of sterility in women, high infantile mortality, congenital malformation, the physical disability and other late results. All these provide valuable additional information which should be given to the public.

Practical Considerations

In talking about how people get information about venereal disease we must not overlook two important practical points:

1. Presentation of the information to conform to the background of the people for whom it is intended, especially in the countryside, and to take into consideration areas in which people are already interested, that is, sensitive and emotionally-charged areas of interest. For example, procreation is the ultimate end of marriage in Africa and anything that would disturb or impair that ability would certainly be a factor of great emotional stress which would be avoided at all costs.

2. The status of the people who give the information or who take part in the spread of such information. Apart from health workers and doctors, we have found that the priest, the pastor, the local teacher, the chief of the village, could play most valuable roles. In one instance, the village chief, after a talk on the evils of migratory labour force in his area, arranged small, intimate meetings with some of his councillors to discuss practical methods of protecting their wives, young girls and also the problem of avoiding contamination by

[1] Plays are used because they dramatize, are impressive and entertaining. Their effects last longer.

extragenital methods. It is our experience that the effects of such personal communication last longer and carry more weight in inculcating important ideas into the minds of the people than all the results of mass communication media. This is most important, especially when it involves some changes in the habits of a people.

Ambulatory Clinics

We have also discovered that where there is an efficient and well organized medical and health service, especially within the community, the treatment centers, including ambulatory clinics, act as agents of effective propaganda as well as curative and preventive units. There are great distances to cover in Africa; general practitioners are not many and certainly are non-existent in the rural districts; ambulatory clinics seem, therefore, to have had greater value rather as propaganda agencies than as treatment centers, though they would also seem to provide continuity of treatment. In Africa today, drug pedlars and allied agents have invaded the rural districts and have in some cases and only in some cases been able to spread useful information.

Conclusion

We need more data on the behavioural aspect of this subject in order to understand the whole complexity of the social environment of the patient and the reactions of the people to venereal disease. It may then be possible to evolve the correct technique of communication which will achieve the desired results. Evaluation of the present methods of mass communication media, exchange of views by workers in the field in various countries and the assessment of the effects of changes in the economic and education level of the people in relation to endemic and venereal syphilis and gonorrhoea are badly needed.

Panel: Education About Venereal Disease in the Schools

ODIN W. ANDERSON, Ph.D., *Moderator*

Part I. Education About Venereal Disease in the Schools

ELIZABETH S. FORCE

ABSTRACT

The question of whether and how to teach about V.D. in high schools is not a simple one to answer, because the issue is beclouded by emotionally charged, conflicting, and controversial attitudes toward sex.

Adolescents are not impressed by facts alone; they are moved by feelings. They must be helped to clarify and express those feelings.

No teacher should undertake to teach about V.D. who is not emotionally stable, lacks proper training, or is not supported by the administration.

Public health officials should present to school superintendents the facts concerning V.D. as they relate to school boys and girls in the community.

One must keep a wholesome balance between idealism and reality.

SOMMAIRE

La question de savoir si, et comment, l'enseignement au sujet des maladies vénériennes doit être donné dans les écoles secondaires, n'est pas facile à résoudre, car des attitudes sexuelles chargées d'émotions, de conflits, et de controverses entrent en jeu.

Les adolescents ne sont pas touchés par les faits en eux-mêmes; ce sont les sentiments qui les affectent. Il faut les aider à éclaircir et à exprimer ces sentiments.

Aucun instituteur ne devrait entreprendre d'enseigner au sujet des maladies vénériennes qui n'est pas de tempérament stable, ne possède pas une formation adéquate dans cette matière, ou n'a pas l'appui de l'administration.

Les fonctionnaires des services de santé publique devraient présenter aux directeurs d'écoles les faits au sujet des maladies vénériennes tels qu'ils concernent les écoliers et les écolières de la communauté.

Il faut maintenir un équilibre sain entre l'idéalisme et la réalité.

RESUMEN

El problema de la enseñanza de las enfermedades venéreas en las escuelas secundarias y como efectuarla aumenta debido a que existen actitudes cegadas por la emoción al mismo tiempo que contradictorias y controversibles con relación a los temas sexuales.

Los adolescentes no son afectados sólo por la realidad sino que son impelidos por los sentimientos. Es necesario ayudarles a aclarer y expresar esos sentimientos.

Un maestro que se sienta emocionalmente inseguro, que no cuenta con el adiestramiento apropiado ni con el apoyo de la administración no debe asumir la responsabilidad de la enseñanza de las enfermedades venéreas.

Los funcionarios de salud pública deben exponer a los directores de escuelas los datos relacionados con las enfermedades venéreas y la manera como afectan a los estudiantes, mujeres y varones, en la localidad.

Es necesario mantener un equilibrio entre idealismo y la realidad.

IN A SENIOR high school class in family living, I remember one lad who declared persistently and consistently at every opportunity, "A woman's place is in the home." I recall that my response was equally consistent and persistent, "*What* woman and in *what* home?"

In considering whether or not the teacher in the school should share the responsibility for teaching boys and girls about V.D., I am obligated to ask, "*What* teacher and in *what* school?" If I were a teacher in Dr. Hansen's school system, there would be, for me, no problem. If education about V.D. (or about anything else) were merely a matter of providing factual information to others, this issue might be readily settled. Surely, it would not be a subject for a panel discussion at an international conference. We share a general uneasiness about this matter, and we know that there are

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implications and complications to be thought through. This is not a simple problem.

In a recent article in *Children*, Dr. Celia S. Deschin writes, "One need that all these young people (the 600 adolescents who were patients in a V.D. clinic) had had in common was for better education about sex and venereal disease. On the surface, this should present little or no problem. The issue is, however, beclouded by emotionally charged, conflicting and controversial attitudes toward sex in society at large, as well as among teenagers who have contracted the disease. Constructive sex education requires a point of view and sanctions for codes of behavior to which society expects its youth to adhere." [1]

Problems of V.D. Education in Schools

We would agree that all children and all youth are entitled to whatever protection accurate information and knowledge can give. We also know that knowledge of facts alone has limited impact on behavior. Adolescents particularly are not likely to be impressed or moved by facts only, especially facts about the self, sex, love, courtship and marriage. They are moved by feelings. They have feelings about facts, and it is most important to help them clarify and express these feelings. We need to know how closely they are in touch with the facts and the realities about which we here are concerned. The adolescent can be acutely perceptive to reality on the one hand and can bruskly deny it on the other, at least so far as unpleasant realities are concerned, and particularly if they affect him as an individual. His perception may be keen but his ability to accept or make personal application may be lacking. This is particularly relevant to our present concern with education about V.D.

The point I am trying to make here concerns a point already made—the limitations of a factual approach when dealing with adolescents, although facts have their use and place. I do not and cannot speak for all teachers in all schools. I am saying that asking *the* teachers or *a* teacher to teach students about V.D. raises problems that are more real than imaginary. It is to the credit, rather than to the discredit, of a teacher if he approaches this area with some misgivings based on a recognition of the importance of the task and the sensitivity of the subject matter and the reality of his own emotional conditioning. If he lacks confidence in himself, lacks assurance as to the soundness of his teaching approach, he may resist taking the responsibility, and rightly so.

If there is resistance on a teacher's part, there is a reason. If there is insecurity, it has a base. If there is anxiety, there must be a cause. If there is distaste, it has a source. These feelings won't go away because someone scolds or prods or threatens. Resistance may be due to many things: lack of knowledge, lack of emotional maturity, concerns about student reaction, uncertainty about community and parental support, lack of skill in dealing with feelings and attitudes. Obviously no teacher should be expected or required to carry responsibility for education about V.D. without stable emotional equipment, proper preparation and training, and support of key persons in administrative positions.

For the teacher who is well prepared and well equipped in both knowledge and temperament, who has the approval and support of key persons, there is a real opportunity and an obligation to help boys and girls obtain information about V.D. and to help them grow in an understanding and appreciation of their sexual nature and its expression. There are many such teachers at work in classrooms throughout the nation. In health classes, primarily and properly, this teaching is done. It should be done early enough to be helpful to the youth whom we seek to protect.

Need for Teacher Preparation

It seems to me that it is the duty of the medical and public health officials to present to superintendents of schools together with the recognized leaders of parent groups the facts concerning V.D. as they relate to school boys and girls in a given community. "Here are facts you should know about. This is the situation. What shall *we* do about it? What are our mutual responsibilities and how shall we carry them out?" This must be a cooperative decision. If it is decided that school teachers be given a share of the responsibility, then teachers must be prepared for their task. This preparation must include more than information about V.D. since this is not an isolated problem. The base of study should be broad, with the family in society at the center, and the areas of responsibility clearly designated, V.D. being given its proper place in the health curriculum.

[1] Deschin, Celia S.: Teenagers and venereal disease: A study of 600 adolescent patients in social hygiene clinics. Children, July–August 1962.

However, teachers must be on their guard not to leave with the young people in their care the impression that most teenagers are sexually casual, irresponsible or promiscuous. They must make clear that, in spite of excellent factual knowledge, it is one's feelings which may determine what one will do in a given situation. The teacher must be ready to deal with issues and questions arising out of a lesson about V.D.—issues and questions about values, morals, standards, about love and sexual relationships. If the teacher who handles the discussion of V.D. wishes to deal with facts alone, then somewhere else in the school the behavioral aspects of living must be opened for study and discussion.

Wholesome Balance Between Idealism and Reality

One of the chief problems that we must work out is to keep a wholesome balance between idealism and reality. We know that the world in which we live presents many contradictions for youth as they work toward developing their ideals. These contradictions must be frankly faced. Someone has said, "Protection is no protection." If we wish to help children and youth to live a self-controlled, self-respecting life and to grow in understanding and appreciation of their complex physical, social, emotional and spiritual nature, we must constantly work on some basic matters. We should, in every way we can, try—

1. To increase the self-respect of those with whom we work.
2. To enlarge their capacity to love.
3. To help them make a place for idealism and realism where one may support the other.
4. To increase their capacity to build genuine and honest relationships in their family circle.
5. To assist them to satisfy what it is said all men possess, "a natural hunger toward wholeness."
6. To help them find ways to regulate their own conduct in order to win the normal satisfactions of life.

All teachers can help with these tasks. Only through such an approach will the knowledge about V.D. which is taught be applied in a constructive way.

Part II. Education About Venereal Disease in the Schools

CARL F. HANSEN, Ed.D.

ABSTRACT

One-fifth of all reported infectious venereal disease in the U.S. involves persons under age 20.

Education about V.D. in the schools is increasing.

In 1956 Dr. Corning, District of Columbia Superintendent of Schools, appointed a city-wide committee to consider the problem of sex education in D.C. schools. The committee came to the following conclusions: Many children were not acquiring proper knowledge or attitudes regarding sex at home or at church. Children and youth receive most knowledge of sex problems from their peers. It is the school's responsibility to provide accurate information about V.D. An understanding of desirable and undesirable social behavior should be developed. Education concerning venereal disease should be an essential part of a broad program of sex education.

A guide was then prepared indicating a desirable program of sex education for elementary, junior high, and senior high levels. Certain schools were selected to serve as pilot schools for each level during the first year. A number of workshops for teachers and administrators were held.

The topics concerning V.D. are as follows: How the disease is contracted; symptoms; relation of infection to future happiness and health; necessity for early recognition and professional care; avoidance of quacks.

Progress should be slow but sure in setting up a program of instruction about V.D. Changes in attitudes and patterns of behavior are made slowly.

SOMMAIRE

Un cinquiéme de toutes les maladies vénériennes infectieuses, aux Etats-Unis, concernent des moins de vingt ans.

L'éducation sur les maladies vénériennes, dans les écoles, est activement poussée.

En 1956, le Dr. Corning, Inspecteur des Ecoles pour le District de Colombie, désigna une commission, avec compétence étendue à toute la ville, chargée de se pencher sur le problème de l'éducation sexuelle dans les écoles du District. La Commission en arriva aux conclusions suivantes: de nombreux enfants n'acquéraient pas une connaissance ou un état d'esprit convenable vis-à-vis du problème sexuel, pas plus chez eux qu'à l'église. La plupart des connaissances acquises sur ces problèmes par les enfants et la jeunesse en général le sont de leurs camarades. Il est du devoir de l'école de procurer un enseignement précis sur les maladies vénériennes. Il y aurait lieu de développer un jugement permettant de distinguer, dans le comportement social, ce qui est bien de ce qui est mal. L'enseignement concernant les maladies vénériennes devrait être une partie essentielle d'un vaste programme d'éducation sexuelle.

Un guide fut alors préparé indiquant un programme souhaitable d'éducation sexuelle à l'usage des petites, moyennes, et grandes classes. Certaines écoles furent choisies pour servir d'écoles-pilotes à chacun de ces niveaux scolaires pendant la première année. Un certain nombre de salles de travail pour professeurs et administrateurs furent installées.

Les questions relatives aux maladies vénériennes sont les suivantes: la manière dont la maladie est contractée; ses symptômes; incidence de l'infection sur le bonheur à venir et sur la santé; nécessité d'un dépistage précoce et de soins médicaux, élimination des charlatans.

Les progrès seraient lents mais sûrs en mettant sur pied un programme d'instruction sur les maladies vénériennes. Les changements d'attitude et dans les manières de se conduire se font toujours lentement.

RESUMEN

Un quinto de todas las enfermedades venéreas denunciadas en los E.U. está compuesto de personas menores de 20 años.

La educación sobre las enfermedades venéreas en las escuelas esta incrementando.

En 1956, Dr. Corning, Superintendente de las Escuelas del Distrito de Columbia designó un comité que estaba compuesto de miembros de toda la ciudad para considerar el problema de la educación sexual en las escuelas de D.C. El comité llegó a las siguientes conclusiones: muchos niños no estaban recibiendo la debida instrucción o actitud en relación al sexo en el hogar y en la iglesia. Los niños y las juventudes reciben la mayoría de sus conocimientos sobre los problemas sexuales de sus compañeros. Es la responsabilidad de la escuela procurar una información correcta sobre las enfermedades venéreas. Se debe fomentar una completa comprensión sobre el comportamiento social deseable e indeseable. La educación que se refiere a las enfermedades venéreas debe ser una parte escncial de un programa amplio de la educación sexual.

Se señaló entonces una pauta a seguir para desarrollar un programa lo suficientemente atractivo de educación sexual para los niveles elementales, de secundaria básica y secundaria superior. Algunas escuelas fueron elegidas para servir de escuelas piloto para cada nivel durante el primer año. Se celebrarón un número de seminarios para profesores y administradores.

Los temas que se referian a las enfermedades venéreas fueron los siguientes: Como se controla la enfermedad, sintomas, relación de la infección a la felicidad y salud del futuro, neecesidad de reconocerla al principio y cuidado profesional, manera de evitar los curanderos.

El mejoramiento debe realizarse poco a poco, pero debe de asegurar la creación de un programa para proporcionar la instrución sobre las enfermedades venéreas. Los cambios de actitudes y las normas de comportamiento se efectuan lentamente.

HEALTH HAS LONG been a subject in the school curriculum. Freedom from venereal disease is essential to health. What except the traditional taboos on the subject justifies exclusion of education about venereal disease from the public school curriculum?

Need for Educating for Prevention

Gonorrhea stands third and syphilis fourth among other reported communicable diseases being exceeded only by measles, scarlet fever, and streptococcal sore throat, and infectious venereal diseases are increasing (*1*).

Primary and secondary syphilis reported in the United States increased from 12,471 cases in fiscal 1960 to 18,781 cases in fiscal 1961, an increase of 50.6%.

Gonorrhea increased from 246,697 cases to 265,685, an increase of 7.7%. The number of reported cases of primary and secondary syphilis and of gonorrhea is the highest in the past 10 years (*1*).

Venereal Disease Among Teen-Agers

One-fifth of all reported infectious venereal disease in the United States involves persons under age 20. The proportion of all reported venereal disease cases attributed to persons under age 20 has increased significantly over the past three years.

In the 15–19 year age group alone, such cases increased from 44,864 in 1957 to 49,909 in 1958. (Latest complete age figures.)

In girls, more cases of infectious venereal disease occur at age 18 than at any other age (*1*).

National Trends in Instruction About Venereal Disease

1. Instruction about Venereal Disease in the Schools.

In 29 states and 54 cities there is provision for some instruction that includes information about venereal diseases. In 21 states and 23 cities, parochial schools likewise provide such instruction. Education about venereal disease is on the increase (*2*).

2. Instruction By Age Groups.

In several cities, instruction begins with the 10–12 year age group. The 16–18 age group, however, is the point of greatest incidence of planned instruction (*2*).

3. Nature of Courses Given.

In 26 states, instruction was given in the biology of sex, in 22 on behavior associated with venereal disease, and in 20, on both (*2*).

4. Progress or no Progress.

Progress in promoting venereal disease education among various groups was indicated by more than half of the states and slightly less than half of the cities included in the survey (*2*).

5. Obstacles to Increased Educational Effort.

Reasons cited for not including instruction on venereal disease in the schools included "opposition of religious groups," "feeling on the part of the school superintendent that such teaching was not safe," and "emphasis upon the 3-R's, because health education does not affect accreditation."

Many of the state and city health officers expressed their regret over the lack of instruction about venereal disease.

Fifteen states and 38 cities felt that policies against venereal disease education hampered increased effort (*2*).

6. Increased Awareness.

Increased public awareness of the venereal disease problem was noted by 38 states and 61 cities. They cited increased publicity in local newspapers, over radio, on television, and in national magazines as indications of increasing concern and interest in the problem. It was noted also that publications of state and city health departments gave increased space to the venereal disease problem (*2*).

Education About Venereal Disease in the Public Schools of the District of Columbia

Initial Step—The Appointment of a City-Wide Committee by the Superintendent of Schools

In the fall of 1956, Dr. Hobart M. Corning, Superintendent of Schools, appointed a city-wide committee to meet with him and members of his staff to consider the problem of sex education in the District schools.

Very wisely Dr. Corning selected a truly representative committee with members from each organization which had a genuine interest in this problem. Among the community organizations represented were these: D.C. Department of Public Health, D.C. Medical Society, D.C. Social Hygiene Society, D.C. Congress of Parents and Teachers, D.C. Ministerial Association, Urban League and others.

This representative committee reached the following agreements and understandings:

Dr. Hansen is Superintendent of Schools, Washington, D.C.

1. Each child makes his or her own decision concerning sexual conduct. To make a decision other than by default, implies the possession of adequate knowledge and the attainment of wholesome attitudes. Many children in our city were not acquiring proper knowledge and developing proper attitudes regarding sex at home or in a religious environment. Many parents feel incompetent to instruct. Many children have no contact with the church.

2. Children and youth are going to receive some kind of information about sex and venereal disease from some source. Too often it is back-fence or alley information. Studies have indicated that peers still constitute the major source of teen-agers' knowledge of sex and related problems such as venereal disease and pregnancy (*3*).

3. The school has a responsibility to provide accurate information from official sources about venereal diseases presented by competent understanding teachers.

4. Information or facts while very important are not sufficient alone. Woven through all programs to provide accurate information about venereal disease there should be developed an understanding of desirable and undesirable social behavior. Children and youth should be encouraged by every possible means to develop and practice proper individual and group standards of sexual behavior.

5. Education concerning venereal disease should be an essential part of a broad program of sex education. Sex education should be a part of a broad program of family life education wherein there is adequate emphasis upon duties and responsibilities. Preparing young people to understand themselves in relation to the opposite sex with a view toward preventing sex misbehavior, promiscuity, illegitimate pregnancy and venereal disease is a worthy health and educational objective. The development of proper standards of social behavior is a "must."

Next Steps in the District of Columbia Program

After the establishment of the foregoing broad base of agreements and understandings by the city-wide committee, these steps were taken:

1. A guide was prepared which indicated a desirable program of sex education for elementary, junior high and senior high levels. Units of instruction on venereal diseases were included in the program for grade 8 in the junior high schools and for grade 10 in the senior high schools.

2. Certain schools were selected to serve as pilot schools for each level during the first year. The number of schools in each level was increased each year until all schools were participating in the program during the past school year, 1961–1962.

3. Realizing that the most important factor in the success of this program would be the teacher, a number of workshops for teachers and administrators were held. It was considered highly desirable that teachers feel competent and comfortable when presenting this new, rather sensitive area of instruction.

Courses were also instituted at the District of Columbia Teachers College.

Content of the Units on Venereal Diseases

1. Venereal disease is treated as a communicable disease.

2. Emphasis is placed upon accurate information from official sources.

3. Concurrent emphasis is placed upon desirable standards of sexual behavior.

4. The unit on venereal disease is taught in the junior high school as a part of a semester's course in grade 8 titled "Health and Family Life Education."

5. In the senior high school instruction about venereal disease is included in the health education program in grade 10 under "Personal Health". It is presented again in grade 12 as a "Community Health" problem.

6. In both grade 8 and grade 10 the same basic information is presented but with greater detail in grade 10. In brief the topics are as follows concerning gonorrhea and syphilis:

a. How the disease is contracted.
b. Symptoms.
c. Seriousness of the infection in relation to future happiness and health.
d. Necessity for early recognition and professional care.
e. Avoidance of quacks.

Evaluation

We now have an expanded program of instruction concerning venereal disease in some of our schools for five years and in all of our schools for one year.

An exact, complete evaluation of its effectiveness is difficult to make. Measurement in the area of improved information is relatively easy to make. Measurement regarding improved attitudes toward sex and in improved practices is very difficult to accomplish.

There is evidence to indicate a definite correlation between venereal disease and other social problems of youth. The extent of venereal disease among any group varies with other problems of maladjustment, with lack of financial stability and with educational status (*3*).

For the school to assume that it is solely responsible for improvement in venereal disease statistics in a community means that it must also assume responsibility for a deterioration of the venereal disease situation. There are too many influences at work and too many agencies and organizations at work, for any one organization to claim sole responsibility for an improved condition or to be completely responsible when conditions are unsatisfactory.

If, however, the school and all other organizations in the community which desire to protect youth against the hazards of growing up, will join in a comprehensive program of instruction about venereal disease, over the long pull, there should be some improvement in the situation.

The statistics which follow were provided by the Biostatistics Division of the D.C. Department of Public Health. They indicate the picture in the District of Columbia during the past four years during which our expanded program of instruction has been under way.

Incidence of primary and secondary syphilis among youth aged 15–19 in the District of Columbia, 1958–61

Year	*1961*	*1960*	*1959*	*1958*
Number of cases_____	87	48	24	28

Incidence of gonorrhea among youth aged 15–19 in the District of Columbia, 1958–61

Year	*1961*	*1960*	*1959*	*1958*
Number of cases____	1,810	2,289	2,242	1,836

Considering the national trend encouragement can be found in the recent drop in the incidence of gonorrhea. The figures concerning syphilis should cause continuing concern. The impact of a school program cannot be given credit or blame for the changing statistics.

In her recent excellent booklet titled *Teaching Family Life Education, the Toms River Program*, Mrs. Elizabeth S. Force, of the American Social Health Association staff says this on page 18: "Education is forever battling three ancient and formidable foes:

Ignorance: the Don't Know
Indifference: the Don't Care
Thoughtlessness: the Don't Think"

In our program of instruction about venereal disease in the District of Columbia Public Schools, we have joined the battle against these three ancient foes. By giving accurate, scientific information at the proper time by a competent, understanding and concerned teacher, we hope to change the "Don't Know" pupil. By correct information honestly and seriously given, and by straight-forward efforts to improve attitudes and sexual conduct, we hope to change the "Don't Care" and "Don't Think" pupil.

Conclusion

From our experience during the past four years, we should like to share with you some of the important guidelines which have been helpful as we have revised and enlarged our program of instruction concerning venereal disease:

1. Set up and work closely with a general committee consisting of representatives of youth-serving organizations, both public and nonpublic. Their support of the program is very important. They are also a good public relations medium.

2. Keep your parents and other community leaders informed and with you. Most of our schools had a parents' committee from the Parent Teacher Association or Home and School Association which worked closely with the principal and his or her faculty in installing the new program. Members were kept fully informed. They saw films and textbooks used in the program. Most parents want this type of program for their children and will support it fully when they know of its objectives and content.

3. Be certain that the program has the official support of the Board of Education and of the Superintendent and his staff. There should be an official statement of policy which also indicates limitations if any. This gives confidence to teachers and removes fear of criticism by thoughtless, demanding and unfair parents.

4. Be certain that the content is appropriate and accurate. We do no direct teaching in the elementary schools concerning venereal disease. This is reserved for the junior and senior high school. Venereal disease is considered as a communicable disease and is approached first from this point of view.

5. We believe that facts alone are not enough, so emphasis is given to the experiences which will improve standards of social and sexual conduct. Teaching to improve standards of

personal and group conduct should not be limited to this area of instruction. There are many teachable moments in other classes and areas and these should be utilized fully.

6. The importance of the classroom teacher cannot be over-emphasized. To present instruction about venereal disease, teachers should be competent, confident and believing. Since the available materials for pupils are very limited, our teachers provide the desirable information. Our policy has been to advise teachers as follows: "If you don't know, don't teach." Opportunities for teachers to grow in knowledge of this area should be provided through individual and group conferences, department meetings, workshops, bulletins, memoranda, inter-visitation, demonstration lessons, etc. The teacher should be fully informed and enthusiastic if she is to remove from the minds of her pupils the superstition, false information, misinformation and misunderstandings about sex and about venereal disease which so many now have.

7. We have found that the supply of textbooks and other instructional materials on venereal disease suitable for use by pupils is limited. Many basic health tests have nothing in them about venereal disease or at most a brief statement. Apparently such sensitive content presents a problem in connection with state adoptions. There are few films suitable for showing to teenagers. We have found two motion pictures very helpful, they are:

The Invader. Black and white, sound, 37 minutes. Communicable Disease Center, U.S. Public Health Service, Atlanta, Georgia. This film is suitable for showing as an orientation film to secondary school pupils. It tells the story of venereal disease historically.

The Innocent Party. Color, sound, 20 minutes. Suitable for showing to senior high school pupils. Produced by Kansas State Health Department and can be borrowed. Available by purchase from The Calvin Company. This film tells the story of infection by a young man who infects his sweetheart.

We suggest that in setting up a program of instruction about venereal disease that progress be slow but sure. Every important step should be carefully considered and should have the support of the parents and school officials. Make haste slowly. One rash, hasty, and extreme step cannot only set back the entire program but may kill it entirely. Keep your community informed and with you. Be patient and careful. Remember that changes in attitudes and patterns of behavior are made slowly.

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PART III. Education About Venereal Disease in the Schools

REV. JOHN C. KNOTT

ABSTRACT

There is need for more education of youth in sex and V.D., but emotionally charged, conflicting, and controversial attitudes toward these subjects stand in the way. Preventive V.D. education should be part of overall sex education.

Past attempts at developing community programs of sex education have run into two kinds of obstacles: ill-conceived and prepared programs, and puritan-inspired taboo against the subject of sex.

Nevertheless sex education is being carried on by many people and organizations in the U.S.: among others, by the Catholic Church, whose program in 1961 reached about 1½ million people.

With the very wide assortment of beliefs held by the American people, it is well-nigh impossible to arrive at a common point of view or set of standards in teaching sex.

SOMMAIRE

Le besoin s'impose d'instruire la jeunesse en matière de sexe et des maladies vénériennes, mais des attitudes chargées d'émotion et caractérisées par le conflit et la controverse à l'égard de ces sujets s'y sont opposées. L'enseignement en vue de prévenir la maladie vénérienne devrait faire partie intégrante de l'éducation sexuelle.

Les efforts entrepris jusqu'ici afin de developper des programmes d'enseignement sexuel dans la communauté se sont heurtés à deux types d'obstacles: ou les programmes étaient mal conçus et mal élaborés, ou des tabous d'inspiration puritaine s'opposaient au développement du sujet du sexe.

Néanmoins, l'éducation sexuelle est à l'heure actuelle pourvue par un grand nombre de personnes et d'organisations aux E.U.: entre autres, par l'Eglise catholique, dont le programme dans ce but atteignit en 1961 environ un million et demi de personnes.

Vu la très grande variété des doctrines manifestées par le peuple américain, il serait quasi-impossible d'aboutir à un point de vue ou à un système de valeurs commun qui déterminerait l'orientation à donner à une éducation sexuelle.

RESUMEN

Es necesario que se enseñe más a la juventud en cuanto a cuestiones sexuales y enfermedades venéreas; empero, se atraviesan en el camino ciertas manifestaciones de carácter emocional, de conflicto y de debate, que se enfrentan a esa necesidad. La enseñanza preventiva de enfermedades venéreas, debe ser parte de la enseñanza total sobre cuestiones sexuales.

En el pasado, todo intento de incrementar programas comunales de educación sexual, se enfrentó con dos clases de obstáculos: programas mal concebidos y preparados, y restricciones inspiradas por el puritanismo opuesto a materias sexuales.

De todas maneras, mucha gente y organizaciones de los E.U. están enseñando cuestiones sexuales, entre ellas, la Iglesia Católica, cuyo programa en 1961 llegó a alrededor de 1 millión y medio de personas.

Debido a la inmensa variedad de creencias religiosas del pueblo estado-unidense, es prácticamente imposible llegar a un punto de vista ó conjunto de estándards comunes en cuanto a la enseñanza de cuestiones sexuales.

IT IS TO state an obvious truth to say that since every child has the gift of sex he has a right to know what that gift is all about. Each right implies an obligation. In this case there is the obligation on the part of the parent or the parent substitute (the church, the school or the community agency) to see that the proper sex education is given to the child.

Need for V.D. Education as Part of Total Sex Education

It is to state another truth that in many instances the child has not received the proper education in regard to sex, its functions and purposes. The recent fine report, *Teen-agers and Venereal Disease: A Sociological Study of 600 Teen-agers in New York City Social Hygiene Clinics*, indicates that the vast majority of teen-agers infected with V.D. had not received a proper sex education.

This same study says: "The degree of ignorance that the teen-agers displayed with respect to venereal disease and sex (that is, a constructive and integrated understanding of sex, its meaning and relation to life) underscores the need for more education and at an early age."

It says further: "It is recognized that the results of a preventive approach cannot be meas-

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ured as rapidly or as precisely as those currently available from contact interviewing. The question arises as to whether the latter does not need to be supplemented, at least for teen-agers, by long-range efforts at education for prevention . . .

"On the surface, the foregoing would seem to be a simple implication from the study's findings. In actuality, venereal disease education for prevention is a highly complex problem . . . in particular because of emotionally charged, conflicting and controversial attitudes toward sexual activities and venereal disease. This has been complicated because so much of the educational efforts in the past were negatively based, i.e., primarily on fear.

"Additional problems arise out of the fact that it is practically impossible to provide preventive venereal disease education without including sex education and it goes without saying that it is difficult, if not impossible, to provide constructive sex education for the adolescents without a *point of view*."

This quotation is made from the study *Teenagers and Venereal Disease*—because it succinctly and clearly presents (1) the problem, i.e., the need for V.D. education; (2) the solution, i.e., as part of a total sex education; and (3) the difficulties in the way of achieving the solution, i.e., a past history of conflicts and controversies, plus the need for a mutually acceptable conceptual framework or point of view.

Presuming general acceptance of the first two points—i.e., (1) the need for V.D. education; (2) as part of a total sex education—it might be more realistic to devote the rest of the time to a discussion of some of the difficulties in the way of achieving the goal.

Past Controversies About Sex Education

The past is always part of the present. If we learn from the past it becomes part of the progress of the present moment. If we let it become a burden on present activity, progress is hampered.

Past attempts at developing community programs of sex education have too often been stymied by twin handicaps. On the one hand some proposed programs were hastily conceived, ill prepared, excessively physiological in their content and over-promoted by articulate spokesmen of the let's-do-something-about-it school. Their zeal to find a solution to a problem was not always matched by a prudence or diplomacy of approach.

On the other hand there is always a group in every community which seems to be automatically against change, simply on the basis of "What was good enough for my father is good enough for me." In the area of sex education this can be compounded further by the presence of a deep, underlying Puritanism that is part of our national culture and of a Jansenism that is a sort of Catholic puritanism. The presence of either "ism," let alone a combination of both, would result in an almost immediate reaction against any public discussion of sex, since "that stuff" is better hidden away from the delicate, innocent ears of the young.

Too often positions were polarized around one of two extremes. One was either for a particular approach to sex education or against all sex education. Or one was for traditional morality and therefore against despoiling the infants, i.e., any one under 21. Emotions arose, motives were questioned, accusations were voiced and suspicions generated. To paraphrase a saying: the last state of the community was worse than the first.

It would seem to me that the memories of past controversies and arguments in this area can remain vivid enough to render a panel discussion such as this frustrating and, for the most part, fruitless. This is allowing the past to burden the present, for I presume we are serious about the purposes of the panel.

Problems of Developing a Mutually Acceptable Program of Sex Education

At the same time I would make an educated guess that enough maturity has developed to allow all of us to learn from the past. Certainly all of us, regardless of our differences, have an obligation to the community of which each one of us is a part. If there is a community need for sex education then there is a responsibility on all of us at least to attempt a community solution. To say it cannot be done in most places because it has not been done in most places is to adopt a defeatist and unwarranted pessimistic outlook.

The fact of the matter is that a job of sex education is being done by many people and different organizations and agencies on the American scene. As an instance, I suggest that one organization in the United States which has done as much as anyone in the post-World War II education of people in the total meaning of sex, love and marriage is the Catholic Church through its programs for teen-agers, single people, engaged couples, husbands and wives

and parents. In 1961 about one and a half million people participated in these programs.

These statistics are mentioned to emphasize the fact that much more remains to be done even within the limits of Catholic circles. It should also serve as one example of a developing maturity of programming and content which, I am sure, can be matched by other organizations. There is much to be shared by all with experience in this field.

To pool community resources to handle a community problem would seem to be the logical step. But the essential difficulty mentioned by the study quoted above still remains, namely: ". . . it is difficult, if not impossible, to provide constructive sex education . . . without a point of view."

Now, both personally as a matter of conviction and professionally as a matter of faith, I am all for a "point of view." Equally, I am for what is euphemistically called a "value system." A person without either a point of view or a value system becomes either a human sponge, reflecting nothing of his own personality, or a human mirror, absorbing nothing of what is good in society. I would agree that it is impossible "to provide constructive sex education . . . without a point of view" and I would add "without a value system."

Now, which point of view does one adopt for a community program of sex education? Among the Catholics will it be the Irish, German, French, Italian, Spanish, Lebanese, or Ruthenian? Among the Protestants will it be the Episcopalian, Presbyterian, Baptist, Lutheran, Christian Reformed or Pentecostal? Among other Christians will it be the Orthodox, but which—Greek, Russian, Rumanian or Armenian? Among the non-Christians will it be the Unitarian, Universalist or Ethical Culturist? Among the Jews will it be the Orthodox, Conservative or Reformed? Among the seculars will it be Freudian, Neo- or Post-, the Rogerian, the Determinist, Behaviorist, Environmentalist, Rationalist, Neo-Pagan, or the latest, that of the Rational Emotive Psychotherapist?

To attempt to enumerate all the points of view—and this is impossible—is *seemingly* to point up the ridiculousness of trying to find a common point of view in regard to sex education. But all that the above enumeration serves to do is point up the differences between us.

Each one of us harping on what is distinctive will only make it an orchestra of one-note-Johnnies, like the average high school band, which could use a greater sense of togetherness. We need a symphony of effort to point up the beauty and the humanity of sex and its part in the love and life of an individual.

It seems obvious that adults, who have knowledge, are not teaching children, who have ignorance, about sex and its meaning. Equally it seems clear to me that adults have an equal need for communication. The communication might be concerned about the human being, who has sex.

It would not surprise me to discover many more areas of common agreement among all of us as to what a community program on sex education for adolescents should include. Until we who are professionally concerned about this area work this out among ourselves any attempt to promote a school program of sex education will generally be a fruitless thing.

The need for sex education of the adolescent is obvious. How that need is met on a community level will depend to a large extent on how many people of good will and professional competency there are who are willing to work out such a program. Personally, I am inclined toward optimism.

PART IV. Education About Venereal Disease in the Schools

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ABSTRACT

Venereal disease education, from the physician's viewpoint, has two major purposes: prevention and recognition to enable early treatment and prevent dissemination. The nature of the disease would make reduction of its incidence readily possible with basic, truthful instruction, especially of the teenage and young adult groups, with the schools as the logical place for such instruction. But the guilt feelings and moral judgments connected with venereal disease make this task difficult, and despite effective, easy therapy, the incidence is rising rapidly. It is up to the educators to find a way.

Factors underlying the venereal disease education problem include:

1. Many venereal disease patients have little or no knowledge of venereal disease and sexual anatomy, most of their information having come from peers rather than from authoritative sources.

2. Teenage mores are changing and promiscuity is rising. Furthermore, there is a higher incidence among the sexually indiscriminate.

3. Transmission of venereal disease by homosexuals is also on the rise.

These factors all point to the need for effective indoctrination by school, family, and church.

SOMMAIRE

L'éducation sur les maladies vénériennes, suivant le point de vue du médecin, a deux buts principaux: prévention et identification pour permettre un traitement immédiat et empêcher la maladie de se propager. La nature de ces maladies rendrait aisément possible la diminution de son incidence par une instruction élémentaire et conforme à la vérité, pour les adolescents et les jeunes adultes, tout spécialement, les écoles étant l'endroit logique pour une telle instruction. Cependant les sentiments de culpabilité et les jugements moraux qui sont liés aux maladies vénériennes rendent cette tâche difficile et en dépit d'une thérapie efficace et simple, la courbe croit rapidement. Il appartient aux éducateurs de trouver un moyen.

Les facteurs qui sont à la base du problème de l'enseignement sur les maladies vénériennes comprennent:

1. Beaucoup de malades vénériens ont peu ou pas de connaissance des maladies vénériennes et de l'anatomie sexuelle, la plus grande partie de leur savoir à ce sujet leur venant de pairs, plutôt que de sources autorisées.

2. Les moeurs de l'adolescence sont en train de changer et la promiscuité va croissant. En outre, on trouve un taux plus élevé parmi les individus qui manquent de discernement en matière sexuelle.

3. La transmission des maladies vénériennes par homosexuels est également en hausse.

Ces facteurs montrent tous la nécessité d'une instruction efficace, dispensée par l'école, la famille et l'église.

RESUMEN

Desde el punto de vista médico, la enseñanza de las enfermedades venéreas tiene dos objetivos primordiales: la prevención y el descubrimiento de casos a fin de proporcionar tratamiento a tiempo y contrarrestar la propagación. Debido a la naturaleza de la enfermedad, se podría lograr la disminución de la incidencia mediante educación básica y fehaciente, especialmente cuando ésta se imparte a adolescentes y a grupos de adultos jóvenes. Lógicamente, la escuela es el lugar apropiado para impartir la instrucción adecuada. Sin embargo, los sentimientos de culpabilidad y los criterios morales relacionados con las enfermedades venéreas entorpecen la tarea y, a pesar de que existe una terapia sencilla y efectiva, la incidencia está aumentando rápidamente. Es a los educadores a quienes incumbe la tarea de solucionar este problema.

Entre los factores que están relacionados con los problemas de la enseñanza de las enfermedades venéreas se pueden incluir los siguientes:

1. Muchos de los que padecen de enfermedades venéreas tienen poco o ningún conocimiento sobre las mismas y sobre la anatomía sexual. La mayor parte de la información la han obtenido al azar y no de fuentes autorizadas.

2. Se ha producido un cambio en las costumbres de los adolescentes y la promiscuidad va en aumento. Es más, se nota un aumento de la incidencia entre aquéllos que no ejercen discriminación sexual.

3. También está creciendo la transmisión de las enfermedades venéreas entre los grupos de homosexuals.

Todos estos factores llevan a la conclusión de que la escuela, el hogar y la iglesia deben aunar sus esfuerzos para lograr una enseñanza efectiva.

FROM THE one-sided point of view of the physician the function of venereal disease education has two major purposes:

1. Prevention.
2. Recognition so as to lead to early treatment and to prevent dissemination.

The venereal diseases are communicable diseases in which the causative organism is known, the method of transmission is known, the cure is not only known, but is cheap, painless, and is easy to administer without hospitalization or other confinement. This is true for very few communicable diseases. It would seem obvious that basic, truthful instruction about them could rapidly reduce their incidence.

We are now faced with an alarming rise in the venereal disease incidence; with the greatest percent of increase in the teenager and young adult group. Instruction should be focused, therefore, on the teenager, and the school as the normal place for this instruction. However, as you all know, this is not as easy as it sounds. Any attempt to do a forthright presentation of these subjects in many schools gives difficulty to many people. This is undoubtedly so because the venereal diseases are not only communicable diseases, but their venereal connotation brings forth moral judgment, guilt feelings and makes many individuals react extremely. Even the physician, who has been trained to look upon venereal disease as just an illness, is not immune. In a recent study near Los Angeles it was found that in a group with venereal disease, the physicians, required by law to report all cases to the Health Department, tended to report those patients whose social, racial, and economic status varied most from that of the doctor, and the more bonds of similarity between the patient and physician, the less likely he was to report it.

You educators here know more about how venereal disease should be taught to young people than I do. When I was going to college this was done by a scare technique of showing pictures of deformed babies and livers with big knobs on them. A glance at the venereal disease statistics will quickly show that this didn't work. Since 1941 we have had therapy available that can truly control these diseases, and yet, once again, the incidence is rising rapidly. It is hard to escape the feeling that we have failed somewhere. We were lulled into a false feeling of security by the drop in incidence, and this new rise comes back to plague us.

It seems to me, that although the venereal diseases are diseases in themselves, they are also symptoms of failures of our society. To treat the symptoms and not the disease would not be the most desirable practice. It is interesting at this point to recall that Dr. Celia Deschin working with the United States Public Health Service and the American Social Health Association in investigating a venereal disease clinic population in New York, found many patients who had no knowledge of venereal disease and, for that matter, very little knowledge of sexual anatomy. Very significant, I believe, is her finding that most of the venereal disease patients she studied had had all their sexual knowledge from peers, and not from authoritative sources, as a respected adult, parent, or teacher. The schools, the family and the Church must take an active part in the total education of the youth, and their affirmation of standards, or else society must pay for the lack of commitment that may result. I have read with interest the sociological data on the changing mores of the teenagers and have tried to apply this to the changing venereal disease picture.

The increase in promiscuity can be seen in the people I see professionally. However, most of them seem to avoid venereal disease. On the other hand, some of them get venereal disease so repeatedly that they seem almost venereal disease prone. An explanation that may help to fit the facts is one suggested by Dr. Martin Loeb. He wondered if promiscuity could be divided into two components: one we might call frequency of partners and the second, the discrimination in picking the partner. Then we could have two individuals at opposite ends of the scale. One with multiple sexual partners but all belonging to the same club would represent high frequency and high discriminacy. The other, who had very few sexual partners, but these were unknown to him before and after the episode (the casual pick-up), represented low frequency and low discriminacy. Although I know of no figures on the subject, I suspect that the individual who is indiscriminate has a much higher rate of venereal disease than his discriminate but more active counterpart.

Can this "indiscriminacy" in choice of a sexual partner be modified or prevented by education? I believe it can be. The acquiring of sound sexual information and *attitudes* from

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trained and understanding parents, and teachers can give us healthy minds in sound bodies. This should start at a young age, and, as the individual grows older, should lead into discussion and some understanding of the venereal diseases. Because I believe the whole program of information and attitudes are inter-related and that this will lead to a marked diminution of venereal disease, I am dedicated to the program of the American Social Health Association, which, with the United States Public Health Service, many universities and state health departments, have provided such valuable resources and help in this field.

A recent announcement from San Francisco has impressed upon me the necessity of developing sane sexual attitudes if venereal disease is to be controlled. The paper noted a statement by the Commissioner of Health that 86% of the venereal disease seen in the clinics of that city was transmitted by homosexuals. In my own city, the venereal disease transmission by homosexuals has risen rapidly in the past few years. If this is to be prevented, the children must be reached early, and educators must reach the parents also.

I believe that indiscriminate sexual activity and homosexual activity are reflections on childhood training and parental attitudes. The deviant is made, not born. For effective prevention one must reach parents before they have children and one must reach children before they go to school. The significant approach, as I see it, must be made by schools, reaching the respective parents while they are school children and the young parent must be reached by all available agencies. In this, the Church and the volunteer agencies may have the major role. The present statistics suggest that we cannot afford to wait.

PART V. Education About Venereal Disease in the Schools

WILLIAM F. SCHWARTZ

ABSTRACT

The family-life education movement, despite the widely recognized need for it, still remains almost as controversial a subject as it was 20 to 30 years ago. This field has been invaded by parents, medical personnel, teachers, home economists, and so forth. V.D. specialists, who espouse primarily the medical-administrative approach to disease eradication, are now entering the field, because it will be some time before an effective program of family-life education is universally accepted.

Meanwhile, an estimated 200,000 young people under age 20 annually contract a V.D. in the United States. The Surgeon General's Task Force on Syphilis Eradication, in expressing alarm over this situation, sums up the feelings of health authorities throughout the country. The Task Force called for a vigorous and stepped-up program of epidemiology and education to begin now.

Although the long-range potential of family-life education is recognized, V.D. information must be introduced into the public schools as an emergency measure for eradication of V.D., and more specifically the eradication of syphilis.

"V.D. education" is defined as education which deals with the historical, medical, and social aspects of V.D., broadly embracing causes, effects, prevention, transmission, recognition, treatment, and control. The author believes that V.D. education should be presented briefly at about the 8th grade, and then more fully at the 10th grade, as a segment of a health or science course, which already includes a scientific approach to other communicable diseases. This education will have to be promoted and largely carried out by specially trained teachers on a visiting basis until such time as sufficient regular teachers become trained and oriented.

Such teachers should be prepared to handle the normal questions which may be expected to arise out of a study of V.D.; to render minimal group counselling services; and to spot more profound emotional problems, and make referrals to individual counselling where it is indicated.

SOMMAIRE

Le mouvement d'éducation pour la vie de famille, dont la nécessité est pourtant largement reconnue, demeure encore un sujet presque aussi discuté qu'il y a 20 ou 30 ans. Ce domaine a été envahi par les parents, le personnel médical, les membres de l'enseignement, les techniciens de l'économie domestique, etc. Les spécialistes des maladies vénériennes, qui adoptent avant tout l'attitude d'administrateurs médicaux vis-à-vis de la suppression de ces maladies, commencent à pénétrer dans ce domaine en raison du temps qui s'écoulera avant qu'un programme efficace d'éducation pour la vie de famille soit universellement accepté.

En attendant, on estime à 200.000 par an le nombre de jeunes de moins de 20 ans qui contractent une maladie vénérienne aux Etats-Unis. La Mission Spéciale du Surgeon General pour la Suppression de la Syphilis, en exprimant l'inquiétude que lui causait cette situation, a résumé les sentiments qu'éprouvent les autorités chargées de la santé publique dans tout le pays. La Mission Spéciale a réclamé la mise en œuvre immédiate d'un programme énergique et gradué d'épidémiologie et d'éducation.

Tout en reconnaissant les bienfaits à longue portée qui peuvent être contenus dans l'éducation pour la vie de famille, il faut introduire des connaissances sur les maladies vénériennes dans les écoles publiques à titre de mesure d'urgence pour la suppression des maladies vénériennes et plus précisément de la syphilis.

On définit l'"Education antivénérienne" comme une éducation traitant des aspects historiques, médicaux et sociaux des maladies vénériennes, et comprenant d'une manière générale les causes, les effets, la prévention, la transmission, l'identification, le traitement et l'arrêt. L'auteur croit que l'éducation antivénérienne devrait être introduite brièvement dans la classe de 8ème environ,[1] puis de façon plus détaillée en 10ème où elle ferait partie d'un cours d'hygiène ou de sciences qui aborde déjà d'autres maladies contagieuses d'un point de vue scientifique. Cette éducation devra être encouragée et donnée en grande partie par des professeurs spéciaux étrangers à l'école jusqu'au jour où un nombre suffisant de professeurs réguliers auront reçu la formation appropriée.

Ces professeurs devraient être prêts à traiter les questions qu'on peut normalement s'attendre à voir posées au cours d'une étude des maladies vénériennes, à jouer dans une mesure réduite le rôle de conseiller de groupe, à déceler les problèmes émotifs plus profonds et à adresser aux personnes qualifiées les cas semblant nécessiter des conseils personnels.

[1] *Elèves âgés de 13 à 14 ans. (Note de la trad.)*

RESUMEN

La cruzada de enseñanza en el hogar, pese a necesitársela tanto, aún da lugar a polémicas igual que hace unos 20 ó 30 años. Se han interesado en esta cuestión los padres de familia, los médicos, los maestros, los especialistas en cuestiones domésticas, etc. Los entendidos en enfermedades venéreas, quienes advocan la administración médica como la mejor forma de acercamiento a la enfermedad para su erradicación, están ingresando a este campo, ya que ha de pasar bastante tiempo antes de que un programa eficaz de enseñanza en el hogar sea aceptado en forma universal.

Entre tanto, anualmente, unos 200,000 jóvenes de menos de 20 años de edad contraen alguna enfermedad venérea en los Estados Unidos. Las Fuerzas Especiales

del Médico en Jefe para la erradicación de la sífilis, al manifestar su alarma en cuanto a esta situación, resumen el sentimiento de las autoridades sanitarias en todo el país. Estas Fuerzas Especiales exigen que se empiece ahora mismo un programa de epidemiología y enseñanza tesonero y apresurado.

Aunque se admite el potencial a largo plazo de la enseñanza en el hogar, debe introducirse en las escuelas públicas, como medida de erradicación de enfermedades venéreas, instrucción sobre ellas y, más específicamente, sobre la erradicación de la sífilis.

"La Enseñanza Sobre Enfermedades Venéreas" se refiere a aquella instrucción que trata de los aspectos históricos, médicos y sociales de las enfermedades venéreas, abarcando en forma amplia las causas, los efectos, su prevención, contagio, percepción, tratamiento y control. El autor cree que la enseñanza sobre enfermedades venéreas debe presentarse en forma breve alrededor del octavo año de escuela, para luego hacerla más completa por el décimo año, como parte de un curso sobre sanidad o ciencias, que incluya en sí la forma de aproximarse a otras enfermedades contagiosas. Por algún tiempo, la enseñanza debe ser fomentada y llevada a cabo por maestros entrenados especialmente para el caso, hasta que los maestros regulares hayan sido entrenados y orientados.

Estos últimos deben estar listos a responder las preguntas que sin falta se hacen al estudiar las enfermedades venéreas; ofrecer servicios de asesoramiento por grupos; detectar problemas emocionales más profundos y, cuando sea necesario, recomendar asesoramiento individual.

REPRESENTATIVES OF every major interest group—and of every major religious affiliation—have been stating for at least half a century the need for some kind of sex-related education as a part of every child's training for adulthood. Yet, today, in this enlightened and sophisticated age, the family-life education movement, despite its highly respectable and laudable purpose, and despite its various local gains and acceptances, unfortunately remains, for the majority of our citizens, almost as controversial a subject as it was 20 or 30 years ago.

Many persons who do not understand it are nevertheless violently opposed to it; and among its advocates there are few who agree on its scope and content. Just recently, Mrs. Force made the statement that "the term 'sex education' (only one part of family-life education) ... is likely to be interpreted differently in every school and college in the land."

While some of its subject matter is rather simple, most of it does not lend itself to easy formalization; and, therefore, the field becomes openly inviting to the amateur and subject to confusion. I state this, without any criticism or judgment—simply as observable fact.

The sex- and family-life education field has been invaded variously and simultaneously by parents, pediatricians, and general practitioners; by biologists, psychologists, and psychiatrists; by teachers, sociologists, and home economists; by assorted public health workers, panelists, publishers, and professional fund raisers; by clergymen, columnists, and commercial authors; by advisors to the lovelorn and by just well-meaning individuals. The efforts of each are colored by his own discipline, or lack of discipline, as the case may be, and by his own cultural background and frame of reference, personality, prejudices, and personal philosophy.

So one might well ask why venereal disease specialists, who espouse primarily the medical-administrative approach to disease eradication, now appear to be preparing to add to the confusion.

Sex Education Often Forbidden

To begin with, in a number of our largest cities—and unfortunately in areas which harbor some of our larger foci of syphilis infection—teaching of anything which may be construed to be, or include, "sex education" is explicitly forbidden; and I might add: forbidden for teachers as well as for students. Even where school districts have a choice, it seems highly probable that those districts in which it is taught—either at the insistence of, or with the approval of, parents—will be in predominantly middle and upper class areas, where venereal disease prevalence normally is lowest.

Sex Education May Be Ignored

There is another factor, too. From a time long ago when "sex education" meant "venereal disease education" and little else, the concept of family-life education has progressed to a point where many sex- and family-life educators feel that the venereal diseases may—and in fact should—now be largely, if not completely, ignored. Their reasoning—and their point of view certainly has merit—is that *if* children are effectively educated to live by acceptable behavioral standards, the venereal diseases will pose no problem to them personally.

Be that as it may, it will be some time before an effective program of family-life education will be universally accepted, and meanwhile, an estimated 200,000 or more of our young people

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under age 20 are contracting a venereal disease annually. These range from the lowest to the highest socio-economic groups. Often they are children of good families and respectable neighborhoods—children almost unbelievably unaware of the hazard of venereal infection or of what to do should they become infected.

Task Force Recommendation

The Surgeon General's Task Force on Syphilis Eradication, in expressing alarm over this situation, sums up the feelings of health authorities throughout the country.

In calling for a vigorous and stepped-up program of epidemiology *and education* to be inaugurated now, the Task Force was echoing the desperate demands on our office over the past four or five years, both for educational *materials*, and for *assistance* in introducing venereal disease information into the public schools as an *emergency* measure.

We feel that, under the circumstances, although we recognize and have great faith in the long-range potential of sound family-life education, we are obliged to respond to these demands without delay; because *we* see as *our* own primary occupational goal, and responsibility, *not* the re-making of society in our own image, or in a borrowed image, or even in a stylized, idealized, or conceptual image; but simply the eradication of venereal disease, and more specifically, at present, the eradication of syphilis.

We have heard the term "Venereal Disease Education" variously described, and even vigorously denied, but with your indulgence, I would like to suggest a definition for what it is worth.

Venereal Disease Education Defined

I would define Venereal Disease Education as that education which deals with the historical, medical, and social aspects of venereal disease, broadly embracing causes, effects, prevention, transmission, recognition, treatment, and control. Its objects are: (1) To modify behavior in ways which will prevent or minimize infection, and in case of infection, will lead to treatment and prevent transmission; (2) To implant a lasting sense of the historical importance of the disease, and a feeling of urgent necessity to eradicate it; and (3) To stimulate and reinforce other areas of learning.

If I were asked "Is all this really necessary?", I would answer that it *is* necessary if we are to eradicate syphilis and keep it eradicated.

It may be expected that through venereal disease education, some persons may in some measure be deterred from indiscriminate sexual contact; and that some others, on becoming infected, will be able to recognize their infections and seek treatment. But an equally, if not more, important object of venereal disease education is summed up in a statement published jointly by the National Education Association and the American Medical Association; I quote:

> ". . . the modern drugs, effective as they are, will not control venereal diseases unless their use is combined with a continued public health program with sufficient personnel and facilities to seek out and treat sources and contacts of new cases, and to see that treatment is available promptly for newly infected individuals. It is the combination of new drugs, and effective efforts by the medical profession and health agencies, that has brought about improvement.
>
> "Adults interested in sex education will want to help young people to understand that the community has a continuing responsibility for supporting a program to control the venereal diseases, *and* that promiscuous sex conduct continues to carry with it the risk of venereal infection, in spite of new drugs."

Past V.D. Education

Unfortunately, up to this time, in many areas where the subject of venereal disease has been introduced into the schools, teaching has consisted simply of showing a motion picture about some of the social aspects of venereal disease, explaining a few fundamental facts about the causative organism, transmission, recognition, and cure of the disease, and finishing out an hour or so with a combination of free discussion and group counselling—more often than not without benefit of a trained counsellor.

I do submit that this has proved better than nothing. Often it has resulted in case-finding. It usually has been preceded by a suitable presentation and explanation to parents, and in this way has brought valuable information to them also. Moreover, the seriousness of the venereal disease problem has gained entry—in fact at times gained demand—for venereal disease education in schools which previously would admit *no* other sex-related matter.

Proposed V.D. Instruction

However, we feel that much more can be accomplished with the introduction of more for-

mal course material of greater depth—presented briefly at about the 8th grade level, and then more fully at about the 10th grade level, depending on the background and maturity of the majority of students. We see this material presented not as a part of sex- and family-life education, to which it is only incidental, or yet scattered throughout the curriculum; but rather as a segment of a health or science course which already includes a scientific approach to other communicable diseases.

And we anticipate that such education will have to be promoted, and in some places largely carried out, by specially trained teachers on a visiting basis until such time as sufficient regular teachers become trained and oriented. There are three reasons for this:

1. Many teachers presently express feelings of inadequacy to teach about these diseases because they lack suitable knowledge or training.

2. Many teachers and their superiors are aware of the controversial nature of "sex education" and associated subjects, and so shy away from taking the initiative in introducing the subject of venereal disease into their classrooms.

3. And this point is a little more complicated. Certain diseases are easy to talk about, and to mention incidentally in conversation. Malaria is such a disease; and although it has not been prevalent in the United States for years, it is mentioned frequently in all sorts of teaching situations; so that the average high school student today has accumulated a rather surprising fund of knowledge about malaria—its historical aspects, the distinguishing appearance and scientific name of the vector, its symptomatology, its course and prognosis, its medication, the source of quinine, and the peculiar effects of atabrine; but *more important*, they know that it is a disease eradicated from our country and one the re-introduction of which we will not tolerate.

Syphilis, on the other hand, does not share malaria's cloak of respectability. Therefore, although information about syphilis—and gonorrhea as well—*may* be related with a stimulating and reinforcing effect to many, many things commonly learned in history, health, civics, social studies, home economics, guidance, biology, science, literature, mathematics, and current events, it is a rare teacher in *any* of these areas who will have the temerity to refer to a venereal disease or use it as an example when another reference will do as well.

So, we believe that the only immediate answer is to give teachers—health or science teachers, for example—special training to enable them to cover the venereal diseases in depth and to relate them to all these other areas.

Also, we believe that such teachers should be prepared to handle the normal questions which may be expected to arise out of the study of venereal diseases; to render minimal group counselling service; and to spot more profound emotional problems, and make referrals for individual counselling where it is indicated and where such services are available.

Moreover, we would hope that such teaching will be preceded by community and parent orientation, and that it will be accompanied where possible by suitable programs of parent education.

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Venereal Diseases as a Subject of Medical Sociology

JOHN A. MORSELL, Ph.D.

ABSTRACT

The term "medical sociology" is defined as the network or relationships between the spread, prevention and cure of disease, on the one hand, and the social conditions, cultural patterns and psychological reactions of people living in groups, on the other.

Two lines of inquiry of particular interest are the following: The first is concerned with establishing the natural history of the disease organism, its evolutionary course and the role which social development and changing environment have played in both. The second line of inquiry explores the factors which enlarge or reduce the chances that a given individual or group will get V.D.; which promote or retard alertness to infection and dispatch in getting to a doctor; and which produce a variable pathology and a variable reaction to medication.

The history of the treponeme is traced, culminating in its becoming venereal in civilized countries.

The Columbus community survey, which sought to assess knowledge of V.D. and to gauge the penetration of an educational campaign, provided support for the theory that the best educational tack is one that combines the fear element with the promise of a solution: the scare-solution approach.

In general the level of factual knowledge about V.D. was positively related to suspicion of infection and to coming for treatment.

Investigation of components of "the sense of personal vulnerability" could be profitable to health agencies and to sociologists exploring reference group theory.

SOMMAIRE

Le terme "sociologie médicale" est défini comme étant le réseau des rapports entre la propagation, la prévention et la guérison de la maladie d'une part, et d'autre part les conditions sociales, les habitudes culturelles et les réactions psychologiques de gens qui vivent en groupes.

Deux sujets généraux d'enquête sont d'un intérêt particulier. Le premier s'occupe d'établir l'histoire naturelle de l'organisme de la maladie, son évolution, et le rôle que le développement social et les changements d'ambiance ont joué sur l'organisme et sur son évolution. Le second explore les facteurs qui augmentent ou diminuent les chances qu'un individu ou un groupe donné contracte une maladie vénérienne; qui favorisent ou retardent la promptitude à se rendre compte qu'il y a infection et à aller consulter un médecin; et lesquels produisent des différences dans la pathologie et dans la réaction aux médicaments.

On trace ensuite l'histoire du tréponème qui finit par devenir vénérien dans les pays civilisés.

L'enquête faite par la ville de Columbus, qui a cherché à évaluer la connaissance que le public a des maladies vénériennes et à mesurer le degré de pénétration d'une campagne éducative, a servi à renforcer la théorie que la meilleure technique était celle qui consistait à combiner l'élément de crainte avec la promesse d'une solution. On l'appelle la tactique peur-solution.

On a vu que d'une façon générale plus le niveau de connaissance des faits relatifs aux maladies vénériennes est élevé, plus il y a de chances que le malade soupçonne d'être infecté et vienne se faire soigner.

L'étude des éléments qui constituent le "sentiment de vulnérabilité personnelle" serait d'une grande aide aux services de la santé et aux sociologues qui explorent la théorie du groupe témoin.

RESUMEN

El termino "sociologia médica" se define como la red de las relaciones entre el contagio, la prevención y la cura de la enfermedad, por un lado, y por otro las condiciones sociales, las normas culturales y las reaciones psicológicas de las personas que viven en grupos.

Los siguientes son dos puntos á investigar de interes especial: El primero se refiere á verificar la historia natural del organismo enfermo, su curso de evolución y el papel que el desarrollo social y el cambio de ambiente han jugado en ambos. El segundo punto á investigar, examina los hechos que aumentan ó reducen las oportunidades que un individuo ó un grupo dado adquiera enfermedades venéreas; que proporciona o atrasa la precaución que debe ser tomada con relación á la infección y la búsqueda de ayuda médica; y que produce una patología variable y una reaceión variable a las medicinas.

Se determina la historia del trepomema llegando a convertirse en una enfermedad venérea en paises civilizados.

Las investigaciones en la comunidad de Colon que se realizó para obtener mas conocimientos sobre las enfermedades venéreas y para medir los resultados de una campaña educacional proporcionó la base para la teoria el mejor plan de acción para la educaeión es el que combina el elemento miedo con la promesa de una solución: el enfoque de miedo-solución.

En general el nivel de conocimiento de los hechos sobre las enfermedades venéreas se relaciona positivamente a la sospecha de infección y al acudir al médico para tratamiento.

La investigación de los componentes del "sentido de vulnerabilidad personal" puede ser provechoso á las instituciones de salud y á los sociólogos que se dedican a investigar la teoría de referencia de grupo.

I SHOULD STATE at the outset that the remarks to follow constitute a purely personal statement and do not reflect policies or programs of the National Association for the Advancement of Colored People. Indeed, the disclaimer should go even farther: my presence here today owes absolutely nothing to the fact that I work for the NAACP. It is, rather a demonstration that one can never be sure that his past will not sometime catch up with him. A career in social science research preceded my coming to the NAACP and it was in the course of the earlier career that, some 13 or 14 years ago, I was for a time engaged in studies concerned with the problem of inducing infected persons to come in quickly for treatment of their venereal diseases.

As a matter of principle, if I accept an assignment of this kind, I rarely debate the wording of the topic, but attempt rather to do precisely what I am told. Having some experience of the troubles of the program-builder, I assume that the best possible effort has been made to assure a rounded frame of reference and the minimum of duplication. Nor am I inclined to worry too much about whether the term "medical sociology" bears precisely the same meaning for me and for those who arranged the program. For our purposes, I think we can assume that we all have in mind the network of relationships between the spread, prevention and cure of disease, on the one hand, and the social conditions, cultural patterns and psychological reactions of people living in groups, on the other.

Our point of departure is the proposition that clinical understanding of the etiology and pathology of the disease, and the existence of adequate clinical therapy, are not sufficient to bring about control or eradication, which are our goals. The contraction of venereal disease—or of any disease, for that matter—the degree of immunity, the course it follows, and the response to treatment are all affected by the patient's way of life and by the nature of his environment. In venereal disease, moreover, and especially in syphilis, where there is such a heavy premium on early treatment, inducing infected persons to get such attention is almost entirely a problem for sociology or social psychology.

Scientific analysis of these relationships has developed two lines of inquiry which I have found of particular interest. They are independent lines, although by no means unrelated. The first of these lines is concerned with establishing the natural history of the disease organism, its evolutionary course and the role which social development and changing environment have played in both. The second, of greater immediate importance in solving the practical public health problem, explores the factors (a) which enlarge or reduce the chances that a given individual or group of individuals will catch V.D.; (b) which promote or retard alertness to infection and dispatch in getting to the doctor; and (c) which produce a variable pathology and a variable reaction to medication.

Natural and Social History of Syphilis

The expression "non-venereal syphilis" may or may not still be a matter of controversy in medical circles, but there is no doubt that this was the case when the idea was first advanced. The linkage of syphilis with sex proved for a long time an immense obstacle to consideration of what appeared to some to be the essential identity of a long list of diseases, all caused by the same organism. My introduction to this line of thought came with the reading of Ellis Hudson's beautifully written monograph, *Treponematosis*, published by Oxford Press in 1946 (*1*). The thesis has since been restated by Hudson in connection with a more recent volume, *Non-Venereal Syphilis*, sub-titled *A Sociological and Medical Study of Bejel*, published in 1958 (*2*). Bejel is an endemic non-venereal treponematosis found among Arabs, and it was his years of first-hand experience with it that impelled Hudson to his hypotheses.

Hudson's hypothesis was not new with him. Over 50 years before, Sir Jonathan Hutchinson had suggested the same basic unity of the diseases caused by *Treponema pallidum*, and had observed: "The first step, in order that we should understand syphilis, is to recognize that it is by no means necessarily a venereal disease" (*3*). Whether it was the immensely

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damaging yaws of Africa and the New World, the pinta of Mexico, the bejel and frangi of the Middle East, the sibbens and button-scurvy of 18th century Scotland and Ireland, the radesyge of Scandinavia, the skerljevo of Yugoslavia, the irkintja of the Australian aborigines, or any of a dozen other clinical entities, the same pale spiral villain was the implicated agent and the basic pattern unmistakably identifiable.

The mode of entry into the host might, and indeed, did vary; the clinical course and the symptomatology exhibited wide variation; but this range of variations is the essence of Hudson's thesis. This, and the fact that many of these disease forms have demonstrated reversible histories; i.e., they have been venereal at one time and non-venereal at others. The pattern of these shifts and the causes as traced in changes in ways of life and in environmental conditions make a story which ought to hold the utmost fascination for the sociologist. It is unfortunate that the topic remains for the most part an unknown chapter among those who teach and practise the behavioral sciences.

Dr. Hudson's own language provides the best summary statement: "For both [doctors and laymen] syphilis and sex are indissolubly linked; they do not know that this is only half the story. The other half is that the same disease under other names runs riot through great regions of the earth as a childhood disease without reference to sex. Much present social hygiene material is only half true because it deals with only a fraction of a disease. The public should be taught the evolutionary history of the disease; how primitive man domesticated the spirochete and thereby escaped the worst results of the infection; how in civilized countries the venereal form attacks only one-tenth instead of the whole population, how domestication has been lost, and how that has worsened the seqnels of the disease. The public should realize that civilized man through the use of soap and personal cleanliness has made impossible the childhood propagation of syphilis, but that through sexual promiscuity and marital maladjustments the door has been left open for the treponeme to attack at the most vulnerable point, the reproductive age, and the parasite enters through the genitalia, because that is the only way left for it in a clothed and clean population. In a sense, syphilis is an unwelcome by-product of civilization's ascent to higher levels of hygiene" (*1*).

Thus, an organism so fragile that it cannot survive drying, will die at human fever temperatures, is quickly killed by soap and water, and cannot even endure in tapwater; one that has no true vectors in nature and no alternative hosts; this organism found in man the perfect parasitic adaptation. Its beginnings most certainly were in damp, hot climates, where the absence of sanitation and the prevalence of moist, unclothed skin folds gave it a foothold. There it remained essentially a childhood infection, with characteristic early, secondary and latent phases. Even in the tropics, however, there are dry regions, and here the nature and location of the lesions assumed a character more in keeping with the environment. With the treponeme's migration northward to Europe and from India to China, further changes took place and the disease became venereal.

The clothing, substantial dwellings, cooler and dryer skin surfaces and more frequent bathing made it more difficult for the organism to persist on the skin and drove it to the mucous tissues of mouth and genitalia. Sexual intercourse then became the prime human act of sufficient intimacy to provide a clear channel for infection. In J. H. Stokes' phrase: "It is not a divine moral purpose or a satanic primitive ingenuity that connects syphilis with genital activities but a mere biological accident no more significant in the last analysis than the fact that potatoes grow in sandy loam" (*4*).

Fascinating as this may be from the standpoint of the scientific quest, the question has been posed whether its significance is not, on the whole, academic. But there are, in fact, both clinical and epidemiological values to be gained from the wider recognition of the oneness of treponematosis. The virtues of clarified and rational nomenclature are by no means inconsiderable. Broadening of the range of attention of the syphilologist beyond what is severely defined as syphilis could lead to better understanding of syphilis itself. Piecemeal study, which assumes for example that syphilis and yaws are different diseases, may inhibit the cross-fertilization of research which the comprehensive view would encourage.

Social Implications for Control

Finally, there are the social implications for control, and I again quote Hudson: "If treponematosis is a disease of all mankind, it should be recognized as such. . . . Questions of sanitation, social habits, economics and law are involved. The education of the native to live more hygienically and the education of the civilized man to solution of his sexual maladjustments are parts of the same problem. . . .

It is an illusion to hope for a syphilis-free civilization while yaws remains rampant in wide areas of the world" (*1*).

One need hardly urge, in this day and age, the benefits of a world view postulated on the fundamental identity of all mankind. The parochialism which so many find so comforting, in which groups are set apart and assumed to be inherently superior or inferior to each other is not only ethically deficient but is a serious impediment to programs aimed at their betterment. It is surely pertinent to note here the dismay felt by so many at remarks made a few months ago by the president-elect of the American Public Health Association. Dr. J. W. R. Norton, State Health Director for North Carolina, discussing increases in venereal disease, illegitimacy, infant mortality and maternal mortality among North Carolina Negroes, placed the blame on what he termed their lack of personal responsibility. He was quoted as saying: "Most communications media encourage Negroes to blame their difficulties on factors outside themselves instead of using factors in their own area of control within the family. Correction of some of their problems could earn more respect than blaming health and educational groups, instigating court suits and staging wade-ins and sit-ins" (*5*).

One must question the fitness for his national post of a man who is unable to see that the forces which impel Negroes to combat deprivation and injustice are rooted in the imperative need for self-respect, upon which alone can be built what Dr. Norton refers to as a sense of personal responsibility. When the conditions of life and citizenship of North Carolina's colored population are the same as those of its white citizens, Dr. Norton will find that the statistics are the same, also.

The Columbus, Ohio, V.D. Study

The second of the two lines of inquiry to which reference is made here concerns the public reach of the control and treatment mechanisms of the community. As with the first, nothing in the way of brand new research is offered; my purpose again is simply to illustrate a route for useful application of social science to the treponematosis problem. The material to which I refer was summarized in articles in the Journal of Social Hygiene in December, 1952 (*6*) and January, 1953 (*7*), and the voluminous—alas, too voluminous—report on which the articles were based probably still reposes in some dusty corner in the venereal disease division of the United States Public Health Service, which paid for the research. The Ohio State Department of Health and the Columbus, Ohio, Health Department, which were cooperating sponsors, also possess copies, as do the archives of the Bureau of Applied Social Research, of Columbia University, which performed the studies.

This research sought, first, to assess the state of knowledge about venereal disease and the level of awareness of V.D. as a social problem in the population 16 years of age and above in a medium-sized American city—in this case, Columbus, Ohio. It also sought, by comparison of the responses of equivalent population samples before and after, to gauge the penetration of an intensive V.D. educational campaign. A second inquiry involved detailed interviews with approximately one thousand venereal disease patients, two-fifths of whom were being treated in the central Ohio rapid treatment center. The study sought, among other things, to establish the patients' knowledge of and attitudes toward V.D.; the nature of the symptoms, if any, which led to the decision to seek treatment; the amount of time it had taken to reach the decision: and the extent to which V.D. educational material had played a part in the decision.

Knowledge of V.D.

As would be expected, very few people in the community-wide sample were totally unfamiliar with the terms syphilis and gonorrhea and the percentage dropped under three percent when colloquial references were included. But nearly a fourth were ignorant of the usual symptoms of syphilis and only two-thirds were aware that these signs and symptoms may sometimes be absent or imperceptible. These proportions were substantially unaffected by the intensive education program, in spite of the fact that the evidence clearly demonstrated that more people were aware of V.D. as a problem after the campaign than before.

Attitudes Toward V.D.

People were found to divide according to whether they viewed venereal disease as primarily a moral issue, primarily a problem of impaired personal well-being, or primarily a social, i.e., contagion-laden, threat. Potential deterrents to coming in for treatment included fear of disclosure and the resultant shame; but the shame could be either on moral grounds or on the ground of having been so stupid as to get caught. Indeed, the prevalence of the latter view, taken in conjunction with the tenor of

expressions on extramarital sex relations, suggested clearly that most of the respondents could be sufficiently worried by the possible damage of venereal infection to health, status and personal relations to try to be careful; but not so afraid as to be induced to live differently.

The Columbus community survey provided substantial support for the theory that the best educational tack is one that combines the fear element with the promise of a solution: the scare-solution approach. Stress on the unhappy physical consequences and on the contagiousness of V.D., coupled with emphasis on the relative ease, simplicity and assurance of cure under treatment was indicated as the optimum combination, the one most likely to operate effectively upon the greatest variety of individual attitude-complexes.

Reasons for Seeking Treatment

Among those members of the population who had actually contracted venereal disease and who came into the treatment sample, the issues were naturally more pointed and the implications reached were of greater practical immediacy. There was certainly nothing new or startling in the information that detecting a sign or symptom had a great deal to do with the decision to seek treatment; but it *was* deemed significant that 15% of those who came in voluntarily had noticed no symptoms at all and that 29% of those who came non-voluntarily (i.e., when summoned as named contacts) *had* noticed definite symptoms but had ignored them.

The study made is very plain that the factor of alertness to or awareness of venereal infection as a matter of personal concern—the sense of personal vulnerability, if you will—was of tremendous importance. In fact, while differences in the visibility or discomfort of symptoms played the anticipated role in speedy or retarded quests for medical attention, the patients who became suspicious in the absence of any signs or symptoms whatever were the very quickest to come in.

In general, the level of factual knowledge about venereal disease was positively related to, first, suspicion of infection and, second, coming for treatment. In one group, however, the younger males, greater knowledge was negatively correlated with speed in seeking help. The as yet untested hypothesis to account for this is that this group's knowledge was deficient in the fear elements that might lead to a sense of urgency; lacking this, their knowledge may have led to a sense of being "in control of the situation" and to deliberate rather than hasty action.

Racial differences, as in the community study, were slight except in the area of general knowledge, in which Negroes were somewhat worse off than whites. Sex differences were more notable, however, and showed the same patterns in both races. Thus, among women, more knowledge hastened volunteering; fear of pain in diagnostic and therapeutic procedures deterred men but did not affect women; guilt feelings and fears of disclosure delayed women but not men.

Conclusion

All these findings could have and should have some bearing on the formulation of plans and programs for V.D. case-finding and treatment. The many questions left unanswered might, as in most research, lead selectively to additional insights of practical value. In particular, investigation of the meaningful components of what has been referred to as the "sense of personal vulnerability" could be profitable to health agencies and might yield results of interest to the sociologist exploring facets of reference group theory.

If the requirement of this paper had been argumentative, that is, to establish a case for the combining of sociological and medical approaches to problem-solving in public health, the foregoing paragraph would need to be greatly amplified. It is obvious, however, from a symposium format in which behavioral science occupies so vast a segment of the terrain, that there is no substantial opposition to the point of view. I am grateful, therefore, to have had an opportunity to contribute these illustrations of a proposition with which all of us here are in such close agreement.

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Our Armory Against Venereal Disease

GAMIL BEIROUTY, M.D.

ABSTRACT

Three main drugs have been tried against V.D. in the last half-century, and yet gonorrhea is still third, and syphilis fourth, most widespread infectious disease. This is due to the expanding sources of transmission fostered by relaxed morals.

There are 227 registered prostitutes in Lebanese brothels, subject to semi-weekly medical examination, in addition to occasional unannounced raids for check-ups. As a result, incidence among inmates has fallen from 214 cases in 1946 to 45 in 1961. The major source of V.D. in Lebanon is free clandestine prostitution.

Particularly affected by the rising V.D. rate are young people and teenagers.

Efforts must be made to immunize youngsters against prostitution by: (1) instituting compulsory sexual education, (2) organizing ambulant V.D. museums, and (3) combating motives conducive to prostitution in girls.

It is urged that under the sponsorship of the WHO a Sex Educational Committee be formed to (1) set up a complete universal standard of sex educational schedule, and (2) design a universal model of ambulant V.D. museum and its essential exhibits.

SOMMAIRE

Trois drogues principales ont été employées contre les maladies vénériennes depuis un demi-siècle, et cependant la gonorrhée demeure la troisième, et la syphilis la quatrième, dans l'ordre de dissémination des maladies infectieuses. Ceci s'explique par les sources croissantes de transmission grâce en partie au relâchement de la morale.

Il y a 227 prostituées déclarées dans les bordels libanais, assujetties à des examens médicaux deux fois par semaine, en outre de visites inattendues de temps à autre afin d'effectuer des vérifications médicales. Par conséquent, l'incidence de maladie parmi les femmes de ces établissements est tombé de 214 cas en 1946 à 45 en 1961. La source principale de maladies vénériennes au Liban est la prostitution libre clandestine.

La jeunesse, y compris les moins-de-vingt-ans, est particulièrement atteinte par l'accroissement dans le taux d'incidence des maladies vénériennes.

Des efforts doivent être entrepris afin d'armer les jeunes contre la prostitution au moyen de (1) l'établissement d'instruction sexuelle obligatoire, (2) l'organisation de musées ambulants des maladies vénériennes, et (3) la conduite d'un combat contre les motifs entraînant les jeunes filles à la prostitution.

Il est recommandé que sous l'égide de l'OMS un Comité d'instruction sexuelle soit formé dans le but de (1) créer une norme universelle complète pour un programme d'instruction sexuelle, et (2) établir un modèle universel de musée ambulant des maladies vénériennes, ainsi que les objets principaux à y être exposés.

RESUMEN

A pesar de que en los últimos 50 años se han venido realizando pruebas con tres drogas esenciales en el tratamiento de las enfermedades venéreas, le blenorragia continua siendo la tercera y la sífilis la cuarta enfermedad infecciosa de mayor distribución en el mundo entero. Esto es consecuencia del relajamiento de la moral, que ha abierto las puertas a la transmisión de la enfermedad.

En los burdeles del Líbano hay inscritas 227 prostitutas a quienes se les exige exámenes médicos dos veces por semana además de que se les visita, sin previo aviso, con el propósito de verificar si se han hecho el examen médico. Como resultado, la incidencia de la sífilis entre los clientes de burdeles ha disminuido de 214 casos en 1946 a 45 en 1961. La prostitución clandestina es la fuente más importante de enfermedades venéreas en el Líbano.

Los adultos jóvenes y los adolescentes son los que han resultado mayormente afectados por la tasa creciente de enfermedades venéreas.

Es necesario hacer un esfuerzo para inmunizar los jóvenes contra la prostitución: (1) mediante la institución de educación sexual obligatoria, (2) el establecimiento de museos ambulantes de enfermedades venéreas, y (3) combaticndo los motivos que empujan a las jóvenes a convertirse en prostitutas.

Se recomienda que se establezca, con el asesoramiento de la OMS, un Comité de Educación Sexual con el fin de (1) preparar un programa modelo de alcance mundial sobre educación sexual, y (2) diseñar un modelo universal de un museo ambulante de enfermedades venéreas con ilustraciones pertinentes.

IT IS THE aim of our profession to struggle with diseases. Despite the modern progress of medicine we are still far from eradicating diseases such as smallpox, typhoid, diphtheria, etc. However we never cease to struggle with these through vaccination and immunization.

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Efforts to Control Present Upsurge in V.D.

As to V.D., we have tried during the last half century three main drugs: 606, sulfa and

penicillin. Each gave spectacular results at the beginning; mostly so penicillin, which predicted the virtual extermination of V.D. But notwithstanding the more energetic penicillin therapy and despite varying control measures, gonorrhea still comes the third and syphilis the fourth most frequent infection amongst communicable diseases. This is easily explained by the markedly wide spreading source of transmission, fostered by the striking relaxation of morals and the flaring up of promiscuity and lust all over the world, coinciding with the world general tendency toward abolitionism in conformance to the resolution of the International Abolitionist Federation condemning the regulated prostitution. No doubt the regulated prostitution in licensed houses is not only an incentive for lewdness and sex perversion, but a discriminating means for the traffic in persons. However, pending the enactment of a new legislation, we do still maintain the brothels in Beirut under severe medical and police control while strictly prohibiting new admissions in view of gradual abolitionism. Number of girls in 1946 was 208, peak reached 280 in 1956 to drop down to 227 this year. These are submitted to medical examinations twice weekly by the municipal Medical Officer. A further medical control is carried out by a specialist of the Public Health Ministry through sudden weekly raids into their houses without warning inmates in view of a check up and smear taking. Owing to these measures incidence of V.D. amongst inmates fell regressively from 214 in 1946 to 45 in 1961. Whereas in the 135 existing cabarets and bars, we have 123 natives and 475 "artist's strangers," duly registered at police quarters, most of these are definitely known to be practicing clandestine prostitution and spreading V.D. For instance, we had 175 street walkers mostly teenagers and native barmaids brought, a few at a time, by the police vice squad into the V.D. hospital for medical check up. Result: 13 with menses, two turned out to be young men impeccably dressed up as "good time" girls, impossible from external appearance to detect the real sex, while 101 had V.D. Much higher is the incidence rate amongst the 475 foreign cabaret girls. Twenty-eight epidemiological reports referred to us from the U.S.A. Naval attaché, American Embassy in Beirut, following the short visit of the Sixth Fleet, definitely indicated contacts from this foreign group of girls who entered the country under the guise of artistic engagement, more valuable for their personal appearance than for their artistic merits.

A thorough investigation amongst licensed prostitutes and street walkers, as to conducive motives, proved that almost all were driven to prostitution by destitution and necessity.

The above comparative figures definitely prove that the major source of V.D. is the free clandestine prostitution that has flared up all over the world with the subsequent upsurge of V.D. What is more distressing about this upsurge is the age incidence. Data from all parts of the world clearly indicate the recently emerging evidence of the increasing incidence of gonorrhea among the youngsters and teenagers.

From the United Kingdom, data show that the total number of new cases seen at the clinics in 1958 was higher than before the second world war.[1] Of special importance was the increasing incidence in the youngsters.[2]

Increase in V.D. Among Teenagers

From U.S.A. estimation of the true incidence of gonorrhea in the U.S.A. is more than a million cases annually and more than half of all gonorrhea cases reported are in persons under 25 years of age—teenagers and youngsters.[3]

From Canada number of cases reported was the highest since 1951.[4] From Norway (Gessing 1960) and from Sweden (Enfors and Gisslen 1960) have shown an increasing tendency of the annual incidence of gonorrhea particularly more frequent in the age group 15 to 19.[5]

This can also be easily explained by the upsurge of promiscuity together with the development in the adolescents of a Don Juan's valor and recklessness, based on an overconfidence in penicillin, very easily obtainable, relying and quite often too, secretly on self treatment—inadequate as it is but convenient, easy and tempting.

Above data clearly show the grave dangers that teenagers everywhere are exposed to. Most of them are completely ignorant of sex matters and fully unaware of the serious dangers that may tarnish their school standing and handicap them in their future career. It is not

[1] Annual Reports, Chief Medical Officer, Ministry of Public Health, United Kingdom.

[2] British Cooperative Clinical Group's Study, 1960.

[3] Source: Dr. William J. Brown, Chief, Venereal Disease Branch, Communicable Disease Center, Public Health Service, Atlanta, Georgia.

[4] Annual Statistical Report on Public Health, Canada, 1961.

[5] Increasing prostitution among girls of 15 and younger. Sweden (ST/SOA/SER. M/6 page 74).

as much their fault as it is yours. It is up to you fathers to protect them and to safeguard their future. Today's adolescents are your future men. Trying to find better and more energetic remedies is no solution. To leave them on their own to grope in complete darkness, fully unaware of sex matters till they get involved in serious sexual perversion, homosexuality and V.D. as is the case today, we will certainly have more victims on our hands.

The main purpose of today's forum is to redirect our efforts regarding the upsurge of V.D. But it is not as simple as that. It is an upsurge of promiscuity among young men and young girls; an upsurge of prostitution all over the world; an upsurge of homosexuality and sexual perversion; an upsurge of drug addiction and alcoholic indulgence. Therefore it is our duty to attack this increasingly alarming phenomenon from every possible angle. We have so far tried all means but one to combat V.D. as a disease, whereas in an upsurge of cholera, typhoid, smallpox, diphtheria, efforts are instantly directed to combat the source of contamination while vaccination or inoculation is set out to immunize the public. Likewise we must redirect our efforts toward immunizing our youngsters against the main source of transmission, mainly prostitution, much as an epidemic, particularly so, as it is often associated with drug addiction, alcoholism and evil environment. Still much more serious is its prevalence in the youngsters and the disquieting increase of V.D. in this group.

Program for Eradication of V.D.

What I propose is this. I speak from a long experience, over 43 years' career in combating V.D. My project is entirely based on the sound doctrine, "Prevent better than cure." We must concentrate all our resources and efforts to extirpate and uproot this complex affliction as an epidemic in the same way as we do with other epidemics.

My project comprises three fundamental procedures:

1. Institute compulsory sex educational schedule.
2. Construct ambulant V.D. museums.
3. Combat conducive motives to prostitution in girls.

Compulsory Sex Education

As to the first procedure: Sex education as a complete 5-year compulsory curricular course. After a long painstaking study on this subject I had published in 1947 an elaborate schedule titled "Educational Talkie to Adolescents"—have improved on it ever since, and am considering having it reproduced into a talking picture. Mainly composed of 5 successive serials—a serial a year, includes regular lectures. Each subject prepares the way in the boy's mind for the higher subjects in the following serial without the fear of shock reaction. No time to go into its details, but briefly:

Serial 1 to boys of 10–11. Introductory subjects: Genesis. Reproduction in lower plants, flowers, trees, fish and birds.

Serial 2 to boys of 11–12. Subjects: Hygiene of the body and external organs. Effect of alcohol, smoking and sports.

Serial 3 to boys of 12–13. Subjects: Physiology of familiar organs of the body; double role of genital organs. Reproduction in pet animals, in higher animals and last, in human beings. Stress is laid this year on the sacred function of the genital organs, God's noblest and most sacred purpose for perpetual reproduction of mankind, make the adolescent realize his future family responsibility, fully appreciate the mystery of life in him, learn to respect this and keep it pure and healthy to be able in future to do honor to God's will.

Serial 4 to boys of 13–14. Subjects: Manifestations of puberty. Changes in the adolescent; apparent, physical, emotional and physiological changes—wet dreams. Significance—Dangers of its provocation—masturbation. Sequelae. Here sports are very strongly urged to leave no leisure time on hand.

Serial 5 to boys 14–15. Subject: Sexual temptations—risks therein. Lectures on V.D.—dangers. Visit to V.D. Museum.

Sex education is an extremely delicate and equally difficult subject. It should be conducted properly; as individual hygiene in primary schools given by Medical Officer attached to the school; and as Sex Hygiene in secondary schools given by a specialist. At this time of freedom of thought, of precocious emancipation, the driving force of medical progress should no longer be held in check by false prejudice nor by groundless consternations.

Ambulent V.D. Museums

As to the second procedure: Ambulent V.D. Museums—same time as circulating pedagogics, moving from one place to another under the control of a social co-worker. These are especially constructed cars having merely a long body, so adapted inside and outside as to

exhibit various illustrated posters, pictorial figures and informative signs, grouped into three collections expressing three main objectives:

1st Collection: Pathological illustrations, pictorial figures demonstrating syphilitic and gonorrheal manifestations; stigmata and sequelae. This has for objective to render the youngsters apprehensive of the dangers of V.D. inciting them to curb their passion, to control their sex instinct, to avoid any promiscuous sexual relations, more so, any illicit contacts.

2nd Collection: Demonstrative charts showing increase of V.D. failure of penicillin—ineffectiveness due to increased resistance of gonococci to penicillin, especially so as these most often lie in a closed or intermittently oozing gland. This has for objective to dispel the fallacious overconfidence in penicillin and to condemn self-treatment.

3rd Collection: Circulars, placards, printed instructions stating that venereal diseases are not necessarily always the outcome of promiscuous or illicit relations; they may be contracted through the most innocent means—hereditary or accidental through kissing or through infected toilet or food articles. (Illustrations exhibiting a chancre on lip, mouth or face.) Hence everybody is exposed to it. Therefore it is not by any means an offence once unlucky to contract V.D. but it is definitely punishable offence to neglect treatment and to transmit the disease to others; more so to undertake marriage and to transmit disease to partner and to future progeny. Hence the necessity of immediate treatment. Confidential treatment available without charge and without discrimination at the anti-venereal dispensary (address and office hours indicated). This has for objective to encourage the reluctant, unaware and timid patients to come forward for treatment and to urge the unscrupulous patients to seek medical and pre-nuptial advice. In this way it is possible to deplete and eventually eradicate the reservoir of infection; helpful in contact finding and treatment.

The creation of ambulant museums would, however, require that Governments provide budgetary appropriations.

Combat Motives to Prostitution in Girls

As to the third procedure of my projects: to combat conducive motives to prostitution in young women. Inasmuch as prostitution depends on the propensity of the two parties, our efforts should be nonetheless energetic toward (1) eliminating the main conducive motive to prostitution in young women—namely, destitution and unemployment by improving their welfare conditions, employment and social security, etc., and (2) combatting the pre-disposing causes and any promiscuous propensities in young girls in schools. Here the ambulant V.D. museums acting as circulating and enlightening pedagogics afford the best means.

My threefold project if properly carried out will most certainly constitute the most effective means of prevention of V.D. as well as the suppression of prostitution, promiscuity, homosexuality, and other sexual perversions. Forewarned, forearmed is the motto of our armory against V.D.

If chastity was not intrinsic in the adolescents it will however be acquired by the sex education schedule. Continence invariably ensues through the dread of V.D. dangers and sequelae.

I cannot but stress too strongly the urgent need of such a project in the Middle East, particularly in the lagging nations.

The WHO has contributed a great deal towards the welfare of mankind in all parts of the world. I do strongly hope that the WHO will sponsor this project. Therefore I propose that a special committee called Sex Educational Committee be formed (1) to set up a complete well-studied universal standard of sex educational schedule, improving on mine, translated to different languages and made compulsory in schools, and (2) to design a universal model for ambulant V.D. museums and the essential exhibits therein.

If any nation sincerely seeks intellectual leadership and cultural supremacy and the achievement of a superman let it with no hesitation foster a thorough sex educational curricular schedule as well as an elaborate anti-prostitutional program.

An Industrial Psychiatrist Looks at Venereal Disease

JOHN MACIVER, M.D.

ABSTRACT

Public health is primarily a province of the behavioral sciences—sociology, anthropology, psychiatry, psychology, and economics. Overemphasis on biological sciences yields only short-term gains.

Penicillin is the supreme biological contribution of the 20th century, and yet, after the first 20 years of the penicillin age and easy victories over V.D., we face the public-health fact that no widespread disease has ever been eradicated by treating affected individuals alone.

The major reservoir of V.D. is among the socially and economically deprived individuals, perhaps 30 million of them, of the country, who populate the state hospitals and crowd the welfare rolls. What is needed is a general uplifting of the quality and living conditions of these people.

So, community health, including V.D. control, can be more fruitfully considered as a field calling for the application of the behavioral sciences, while also utilizing biological tools.

SOMMAIRE

La santé publique est essentiellement le domaine des sciences du comportement: la sociologie, l'anthropologie, la psychiatrie, la psychologie, et l'économie politique. Par la dépendance démesurée des sciences biologiques, on n'obtient que des gains à courte échéance.

La pénicilline est la contribution biologique suprême du 20e siècle, et cependant, après les 20 premières années de l'ère de la pénicilline et des victoires faciles remportées sur les maladies vénériennes, force est de constater à nouveau cette loi de la santé publique: aucune maladie largement répandue n'a jamais été liquidée par le seul traitement des individus atteints.

Le réservoir principal des maladies vénériennes est constitué par l'ensemble des individus socialement et économiquement dépourvus, quelques 30 millions dans notre pays peut-être, qui peuplent nos asiles et sont la clientèle de nos oeuvres sociales. Ce qu'il faut, c'est un rehaussement général de la qualité et des conditions de vie de ces gens.

Ainsi, la santé publique, y compris le contrôle des maladies vénériennes, gagnerait à être considérée en tant que champ d'application des sciences du comportement, sans pour autant négliger l'emploi des outils biologiques.

RESUMEN

La salud pública es primordialmente una parte de las ciencias de proeeder—sociología, antropología, psiquiatria, psicología y economía. Demasiado énfasis en las ciencias biológicas solamente rinde ganancias de corto plazo.

La penicilina es la suprema contribución biológica del siglo 20, y sin embargo, después de los primeros 20 años de la edad de la penicilina y victorias fáciles sobre la enfermedad venérea, nos encontramos con el dato de salud pública de que ninguna enfermedad muy dispersa ha sido alguna vez erradicada tratando las personas afectadas solamente.

La mayor fuente de enfermedad venérea está entre los individuos desprovistos de bienes sociales y económicos, tal vez 30 millones de ellos, del país, que ocupan los hospitales estatales y llenan las listas de beneficencia. Lo que se necesita es un mejoramiento en la calidad y condiciones de vida de estas personas.

Así que, la salud de la comunidad incluyendo el control de la enfermedad venérea, puede ser más fructíferamente considerada como un campo que requiere la aplicación de las ciencias de proceder, a la vez que usa los instrumentos biológicos.

FIRST, a modification in title. I cannot speak for either industrial medicine or industrial psychiatry. I can only speak for myself as an industrial physician and psychiatrist. Even so, I would be loath to address my brief remarks to this group and at this Forum were it not for two personal circumstances. First, my initial interest in the problems of social health lay in the community as a whole and not in the narrower and more specialized field of industry, where I now am. Second, while in the United States Public Health Service some years ago I had the good fortune to be assigned to the Division of Venereal Disease. I say "good fortune" not only because of the stellar accomplishments of the Public Health Service

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and the Division dating back to the 1930's, but because there are few if any better ways to become broadly acquainted with the health problems of a population in depth than by clinical and epidemiological work in V.D.

Importance of Behavioral Sciences

What then, with this background, can I contribute to this meeting as a practicing social psychiatrist in industry? I shall tell you at the outset the point that I should like to get across. I should also tell you that I have not searched for the words and phrases which would be least controversial. It is this. Public health, social health, community health—however you may want to put it—is primarily a province of the behavioral sciences—sociology, anthropology, psychiatry, psychology, and economics—and only secondarily the province of the biological sciences. I am certainly not discarding the achievements of the biological sciences—who could discard penicillin?—but I *am* putting their ultimate role and importance very much in second place.

To make my point another way. It would be possible, I think, to concentrate most of our wealth, time and effort in the problem of individual and mass health, in terms of the behavioral sciences, and give relatively short shrift to the biological sciences, and still make considerable progress in health. But if the imbalance is the other way, radically in favor of the biological sciences (I could also generalize and add the physical sciences), we court disaster. We delude ourselves with short term gains.

Syphilis is a case in point. Few scourges—smallpox, scurvy, and tuberculosis come immediately to mind as possible competitors—have such a fascinating history, not only on account of its role in Western civilization, but also in the light of the scientific and medical elucidation of its nature, its epidemiology, and its effects on living systems, especially the human. The story is well known to you all.

We can skip then to 1943 and the introduction of penicillin. Who could ask for a more powerful weapon? Who, using it day after day in the V.D. clinic, could ever really accustom himself to the miraculous results he could achieve? In this day of technological miracles one is rash to predict, but I will. When the sun sets on the evening of December 31, 1999, penicillin will clearly remain the supreme biological of the 20th Century. Who could ask for anything more? I can hear someone answer, "That's easy: a vaccine." And I would, of course, have to agree. But I would agree uneasily, feeling that once more we had only put the day of reckoning off.

George Bernard Shaw had very decided, and some would say extreme, ideas about doctors and about health. He was, as you may know, a vegetarian, an abstainer from addictive substances, and he was against immunization and vaccination. I remember thinking as a student how interesting that such a great man could be so misguided. Although some of his medical notions (by no means all) are clearly wrong, I now have a great deal of respect for his opinions on health overall. He was anti-immunization mainly because he saw the technique as a means of avoiding the overall-upgrading of the quality of life and living. I, for one, am always impressed with how filthy a sidewalk cafeteria can be in Manhattan, and still be quite safe, thanks to applied bacteriology and the technique of single-service.

So with V.D. In the first 20 years of the penicillin age, all the easy victories—at least in this country—have been won. We are brought face-to-face once again with the public health truism that no wide-spread disease has ever been eradicated by treating affected individuals alone.

Problem of Cultural Deprivation

What are we dealing with now? We are dealing in the main, not with V.D., but with the millions of socially and economically marginal individuals and families who live in our communities, if somewhat isolated and apart. V.D. is one of their problems, and certainly far from the only one. These, say, 30 million are, to put it in a word, the culturally deprived. From this number come the battalions which occupy our state hospitals and our welfare rolls. In this number is the major reservoir of V.D.

What is required, and under the best circumstances it would be a staggering task, is a general uplifting, upgrading, of the quality and circumstances of life in this number. But we are operating in far from the best circumstances. Many of us, I include myself, decry the paucity of competent specialists in the behavioral sciences, whether theoreticians, teachers, writers, or practitioners. That is, specialists in application. But in my opinion there is another far more serious difficulty—a cultural difficulty in our "advantaged" population, those several millions of educated men and women, our "power-elite," who are our opinion- and

policy-makers and conservers of our mainstream culture. The difficulty is a remarkable ignorance or an equally remarkable disdain of the behavioral sciences and their crucial importance in our present and future.

Epidemiologically (I underscore the word) V.D. is not a high priority health problem in non-marginal business and industry; alcoholism, for example, a disease which more easily crosses socio-economic lines, is far more important. Non-marginal industry employs for the most part non-marginal workers. Such workers tend to have more of everything the marginal persons lack: work skills, education, family stability, avocational interests, sense of day-by-day pleasure . . . one could go on and on. The task, to repeat, a staggering one, is to attack fiercely the great problem of cultural deprivation.

Summary

Nothing I have said is new, but I am convinced that it needs constant and reiterative underscoring. To recapitulate: Community health, and by inclusion V.D. control, can be more fruitfully considered—not as fields for the application of biological science, but rather as calling for application of knowledge from the various behavioral sciences, utilizing, to be sure, biological tools. In the current jargon, so I hear, there are hard sciences (physics and chemistry, *et al.*) and the soft, or behavioral, sciences, those sciences which might be defined, I suppose, as not yielding hardware. There may indeed be first- and second-class sciences, hard and soft, although I doubt it. Of this we can be sure: If soft, they remain so at our peril, for they will largely determine whether or not we will prevail.

A Behavioral Science Action Program in a Venereal Disease Clinic

MARIE ANGELL

ABSTRACT

The translation of behavioral science principles into an actual part of a V.D. control program is a complex undertaking and requires thorough evaluation and discriminating application. The San Francisco City Clinic considers its psychiatric social service a necessity and uses it for many purposes: in the school system for V.D. education, for example. The use of behavioral science in V.D. control represents a radical departure from traditional thought. This paper is designed to give others the benefit of San Francisco's 20 years of research, study, experience and mistakes.

In 1942 the San Francisco Department of Public Health established the Psychiatric Service as part of the Division of Venereal Disease Control. In their study of promiscuous women the following factors occurred with such frequency that they were considered to bear an etiological relationship to promiscuous behavior: unstable, unhappy family; lack of sex education; conflicts about sex; vocational and employment problems.

The research and experience of the mental health staff reveals that promiscuity is a result of deep seated emotional and social problems but that patients can be helped by casework services.

The staff now consists of a psychiatric social worker who offers direct service to patients including casework and referral, consultation to staff, orientation to trainees, V.D. education to schools, and consultation to community agencies.

SOMMAIRE

Traduire les principes de la science du comportement en chapitre pratique d'un programme de lutte anti-vénérienne est une entreprise complexe qui exige une évaluation faite à fond et du discernement dans l'application. La Clinique de la Ville de San Francisco considère son service d'assistance psychiatrique comme indispensable et l'emploie à des fins très diverses, par exemple, à l'éducation anti-vénérienne dans les écoles. L'emploi de la science du comportement dans la lutte anti-vénérienne représente une divergence radicale de la théorie traditionnelle. Le présent rapport a pour but de faire profiter d'autres personnes de nos vingt années de recherches, d'étude, d'expérience et d'erreurs.

En 1942, le Département d'Hygiène Publique de San Francisco fonda le Service Psychiatrique dans le cadre de la Division de Lutte Anti-Vénérienne. Un étude des femmes de mœurs faciles fit apparaître les facteurs suivants avec une telle fréquence qu'on les jugea liés à l'étiologie de cette conduite: familes instables, malheureuses, absence d'éducation sexuelle, conflits au sujet des questions sexuelles, difficultés dans le choix et l'exercice d'un métier.

Les recherches et l'expérience du personnel d'hygiène mentale ont révélé que la promiscuité des mœurs était le résultat de conflits émotifs et sociaux profonds, mais que les services d'assistance pouvaient aider les malades.

Le personnel se compose à l'heure actuelle d'une assistante psychiatrique qui s'occupe directement des malades, établit leur histoire et les adresse aux services médicaux, qui conseille le personnel, guide les stagiaires, fait de l'éducation anti-vénérienne dans les écoles et joue le rôle de conseillère dans les organismes communautaires.

RESUMEN

El llevar los principios de la ciencia de la conducta a formar parte integral de un programa de control de enfermedades venéreas es una tarea compleja que requiere evaluación minuciosa y discriminación en su aplicación. La Clínica de la Ciudad de San Francisco (the San Francisco City Clinic) considera su servicio social psiquiátrico como una necesidad y lo utiliza para diversos fines, como por ejemplo, en el sistema escolar como medio de divulgación en cuestiones de enfermedades venéreas. El empleo de la ciencia de la conducta en el control de las enfermedades venéreas representa un desvío radical de la línea tradicional de pensamiento. Este trabajo tiene por objeto el extender a otros los beneficios que hemos obtenido en el transcurso de veinte años de investigación, estudio, experiencia y errores.

En 1942 el Departamento de Salud Pública de San Francisco creó un departamento de Servicios Psiquiátricos como parte de la División de Control de Enfermedades Venéreas. En el curso de los estudios realizados con mujeres promiscuas de encontraron los siguientes factores con tal frecuencia que se ha considerado que los mismos tienen una relación etiológica con la conducta promiscua: falta de estabilidad, una vida de familia desgraciada, carencia de educación sexual, conflictos sexuales, problemas vocacionales y de trabajo.

Las investigaciones y experiencia de los funcionarios sanitarios revelan que la promiscuidad es el producto de profundos problemas emocionales y sociales los que pueden, sin embargo, aliviarse por medio de servicios sociales.

El personal cuenta en la actualidad con los servicios de un trabajador social psiquiátrico quien atiende directamente a los pacientes, inclusive en casos individuales y de referencia, evacua consultas del personal, imparte conocimientos a las personas en entrenamiento, realiza tareas de divulgación a escuelas en materia de enfermedades venéreas y asesora a organismos de la colectividad.

IT'S ONE THING to be aware of and acknowledge the importance of sociological and psychological factors in venereal disease and quite another to translate behavioral science principles into an actual part of a V.D. control program. It's a complex undertaking and requires thorough evaluation and discriminating application.

All of this presupposes a need for a behavioral science program. Is there? The fact that until very recently San Francisco has been the site of the only V.D. clinic to have on its staff a full time social worker tends to indicate some doubt on the part of the rest of the world. The staff at the San Francisco City Clinic considers its psychiatric social service a necessity and uses it for many purposes: as an entree into the school system for the purpose of V.D. education; as a place to refer the irate parent of a teenager or the patient who has just announced his intent to leap from the window; as a place to find out why it is you wish to mother or do damage to a particular patient and why, incidently, you shouldn't do either.

The use of behavioral science in V.D. control represents a radical departure from traditional thought. This paper is designed to give others the benefit of our 20 years of research, study, experience, and, I might add, inevitable mistakes.

Background and Development

During World War II there was great community concern about the large number of servicemen, promiscuous girls, the fleeting relationships and tensions of war, loss of man hours due to venereal disease, and how all of these might interrelate. It was out of this concern that the San Francisco Department of Public Health, in cooperation with local and national agencies, established in November of 1942 the Psychiatric Service as part of the Division of Venereal Disease Control.

At its inception the professional staff of this service included a psychiatrist, a psychologist, and two psychiatric social workers. Representing varied theoretical backgrounds, this staff decided to conduct clinical research of the life history variety and to offer psychiatric and casework services to selected clinic patients (*1*). Because of the then current assumption that promiscuity led to prostitution, the study and services were limited to women under the age of 25 who were referred by the clinic's medical and nursing staff because they appeared to be promiscuous or potentially promiscuous.

One of the prime objectives of the study was to determine the characteristics of promiscuous patients in the hope of isolating the factors operative in promiscuity. Did the promiscuous person have traits or background experiences that would distinguish him from the general population? Another major question was whether psychiatric and casework services might be effective in diverting young women from promiscuity and prostitution. If so, were there criteria for treatability that other than mental health personnel could use to screen patients for referral to community agencies? How effective was such referral? Finally the staff wanted to know if it was feasible to have a mental health service as part of a V.D. clinic. These were the burning questions asked, and we've been trying to find the answers ever since.

This is not to say we in V.D. control have no answers at all. We have some but are acutely aware that far from the last word has been spoken on these subjects. Let's review some of the answers provided by this study and by the subsequent one which included men as well as women patients (*2*). What about the characteristics of promiscuous patients? Can they be distinguished from characteristics of other persons? The researchers could find no variable which in itself would denote promiscuity. There were, however, some factors which occurred with such frequency that they were considered by the psychiatric staff to bear an etiological relationship to promiscuous behavior. These included unstable, unhappy family and other interpersonal relationships; lack of sex education; conflicts about sex; vocational and employment problems.

The researchers concluded that promiscuous behavior was a reflection not of above average sexual need but represented an attempt to meet other problems. How these characteristics compare with those of the non-clinic population

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is still a question, but recent research indicates that many of these factors listed above are shared by non-promiscuous and successful people. The significance of that research will be discussed later in this paper.

It was demonstrated by the psychiatric staff that selected patients could be helped to decrease or eliminate promiscuity. The most effective way to do this, it was found, was to improve the patient's general adjustment.

The desirability of having behavioral science professionals as part of the V.D. control staff was based not only on the success in rehabilitating promiscuous patients but in the fact that most patients for whom community resources could be found did not follow through with the referrals. Thus if help had not been available at the clinic, many patients would have gone without desperately needed assistance. Further, the inability to develop a reliable set of criteria for treatability meant that a mental health professional was needed to perform this evaluation.

The Psychiatric Service continued its operation as a psychiatric clinic within the V.D. Control Division for many years. During this period the Service derived its support and operating funds from the United States Public Health Service, the California State Department of Public Health, the City and County of San Francisco, and the Columbia Foundation. The findings of the Service were published by the American Social Health Association.

The startling success of penicillin in the treatment of the venereal diseases caused a marked decrease in community concern for these diseases. The resulting governmental complacency reflected itself in the gradual withdrawal of support for the Psychiatric Service. Consequently by 1955 there remained but one psychiatric social worker. There has been, fortunately, no further reductions.

The dwindling of staff very obviously influenced the evolution of the Service. Emphasis on psychotherapy gradually gave way to an approach similar to typical public health social work practice. However, the spirit of research remained with informal studies of teenagers and homosexuals being completed in 1957 and 1958 respectively. The beginnings of a program of school and community agency consultation are traceable to this period also.

Present Program

First and foremost, the social worker in a V.D. clinic must be flexible and responsive to the needs of the clinic and work within its framework. This means that as needs change the social service program must change with it. The program I am about to outline is currently in operation in San Francisco.

The patients referred to the psychiatric social worker by the medical, nursing, and epidemiology staff fall into three categories. All patients under the age of 21 are routinely referred for an evaluation interview to determine if there are special problems involved and what kind of follow-up, if any, is necessary.

Any adult who wishes help with a problem, either personality or situational, may be referred. Such problems include promiscuity, homosexuality, excessive reaction to diagnosis, marital or family difficulties, alcoholism, etc.

The clinic staff sometimes refers the patient who lapses, refuses to give information, breaks treatment rules or who otherwise has difficulty adjusting to the clinic routine.

In planning for direct services to patients, prime consideration must be given to the fact that most patients, due to extremely rapid diagnostic and treatment techniques, are known to the clinic over only a few days to a few weeks' period. This factor plus staff limitations generally makes long term casework treatment not feasible or in my opinion within our province. Because of improved community resources and referral techniques, there is no more need for a full psychiatric clinic attached to V.D. control. Considering today's clinic population we could as easily rationalize a need for an on the spot family service agency, alcoholic clinic, or family planning center. Therefore, referral, which means time consuming and careful preparation of both the patient and the agency referred to, constitutes one of the most important services performed by the social worker.

Most direct service to patients is on a short term, supportive, crisis oriented basis, aimed at helping the patient re-establish and perhaps improve upon his former control. It is not known why but patients in time of crisis can achieve more with comparatively superficial means than with deeper methods of psychotherapy in periods of relative calm.

Because of a lack of a particular kind of community service or for other reasons, some patients wishing more extensive help cannot be referred out. Therefore, long term casework services are available at the clinic for a very few select patients who otherwise would receive no help at all.

The goal of such treatment is to improve the patient's present adaptation. We have, I believe, no business whatever dealing with the patient's unresolved Oedipus complex. The rationale for focusing on current adjustment is partially based on studies which indicate that the backgrounds of our promiscuous patients do not differ markedly from those of "successful and normal" people (*3*). Current transactional psychology theories provide the rest of the base for this approach (*4*). Because of the inverse relationship between promiscuity and sex education from a responsible adult (*5*), all patients are offered sex information and interpretation.

I believe that direct services to patients is absolutely essential and, because of the emergent and short lived nature of problems in a V.D. clinic, doubt the efficacy of a consultation only program for staff by a mental health person from outside the clinic.

However, staff consultation in conjunction with direct services is an important activity for the psychiatric social worker. Aside from the obvious benefits that accrue from the pooling of professional knowledge and opinion, consultation affords the individual staff member the opportunity to understand what factors are in play when he experiences difficulty in handling a particular patient or kind of situation. Working in V.D. control is not easy because all of us have very deeply rooted feelings and biases about sex. Awareness and control of these feelings when with patients is crucial to effective clinic operation.

The psychiatric social worker shares in the training responsibilities and orientation of new staff members including the USPHS trainees assigned to the clinic. She conducts a program of V.D. education in the public schools and is available to health and social agencies for consultation and to help develop community resources for the clinic patients.

Research is being considered for the near future. The epidemiology department and I may be undertaking a project to measure and evaluate interaction in the epidemiologic interview. The goal is to sharpen epidemiologic and educational techniques so as to obtain better cooperation and contact information from the patient and assist him in more constructive future use of the clinic facilities.

I am particularly pleased at the prospect of this project because it is a trend away from the unnatural schism between epidemiology and behavioral science that exists in the minds of some and works to the benefit of no one. To be effective, epidemiology must be based on sound scientific principles. Behavioral science stands with medicine and epidemiology in the fight against venereal disease.

Summary

The Psychiatric Service was established as part of the San Francisco Division of Venereal Disease Control in 1942. It operated as a psychiatric clinic and conducted research in promiscuity. The staff now consists of a psychiatric social worker who offers direct service to patients including casework and referral to appropriate resources, consultation to staff, orientation to trainees, V.D. education to schools, consultation to community agencies.

The research and experience of the mental health staff reveals that promiscuity is a result of deep seated emotional and social problems but that patients can be helped by casework services.

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Non-Medical Factors Influencing Reactions to Syphilis

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ABSTRACT

This study employed a sociological frame of reference to study the reactions of 500 Mississippi Negroes who had primary and secondary syphilis. Data on factors influencing the pre-diagnostic behavior of the 500 were collected by intensive interviews with the infected person, by consulting medical records on them and by talking to the doctors who examined them.

The appearance of a venereal symptom may cause some people to seek immediate medical care—these people are termed the "volunteers" in this study. Others are irrational and avoid diagnosis of their symptoms—these are called the "non-volunteers" in this study.

Non-volunteers looked to their families or to persons within their primary social group for help. Volunteers turned to outside agencies for help, i.e., governmental or private health and welfare groups.

Non-volunteers find in their primary groups the most acceptable solution to personal problems because they are members of groups which are deeply involved in the affectual, social and economic needs of their members. Volunteers, lacking such sure ties within their primary groups, can entertain the idea of looking beyond their primary groups and finding a solution to personal problems in the institutional structure of the community.

The non-volunteer will not be motivated to seek diagnosis by educational programs which stress the community's interest in his health and welfare. He is more likely to be persuaded by a person-to-person approach.

SOMMAIRE

Cette étude a utilisé un cadre sociologique de renseignements afin d'étudier les réactions de 500 Noirs du Mississippi atteints de syphilis primaire et secondaire. Des éléments d'information relatifs aux facteurs susceptibles d'influencer le comportement prédiagnostical de ces 500 cas furent recueillis au moyen d'entrevues intensives avec les personnes atteintes, par la consultation de leurs dossiers médicaux et par des entretiens avec les médecins qui les avaient examinées.

L'apparition d'un symptôme de maladie vénérienne peut amener quelques personnes à recourir immédiatement à un traitement médical—dans cette étude, nous appellerons ces personnes des "volontaires." D'autres sont irrationnelles et éritent le diagnostic de leurs symptômes—nous les appellerons ici "non-volontaires."

Les non-volontaires ont recours à leur famille ou à des personnes appartenant à leur groupe social originel pour se faire aider. Les volontaires, pour se faire aider, se tournent vers des organisations extérieures, c'est-à-dire, des groupes ou des organismes, gouvernementaux ou privés, dits "de santé et de bien-être."

Les non-volontaires trouvent dans leurs groupes sociaux originels la solution la plus acceptable à des problèmes personnels pour la raison que ces groupes se mêlent profondément à leurs membres sur les plans affectif, social et économique. Les volontaires, n'ayant pas de tels liens dans leurs cercles sociaux originels, peuvent envisager de regarder au-delà de leur groupe social originel pour trouver une solution à des problèmes personnels dans la structure des institutions de la communauté.

Le non-volontaire n'éprouvera pas le besoin de chercher un diagnostic dans des programmes éducationnels insistant sur l'intérêt que prend la communauté à son bien-être et à sa santé. Il a davantage de chances de se laisser persuader par un entretien en tête-à-tête.

RESUMEN

En este estudio se ha utilizado un marco sociológico de referencia para examinar las reacciones de 500 individuos de raza negra de Mississippi que sufrían de sífilis primaria y secundaria. Se recopilaron datos sobre los factores que influyeron en la conducta de esos 500 individuos con anterioridad al diagnóstico, realizándose entrevistas extensas con las personas infectadas, consultándose la historia clínica de los mismos y hablándose con los médicos que los examinaron.

Al descubrir síntomas de enfermedades venéreas algunos individuos buscan inmediatamente atención médica—en este estudio se designan esos individuos como "voluntarios." Otros actúan irracionalmente y evitan un diagnóstico de dichos síntomas—éstos se designan aquí como "no voluntarios."

Estos últimos recurrieron a sus familiares o a personas de su grupo social primario para que los ayudaran. Los "voluntarios," por otra parte, buscaron la asistencia de diversos organismos, tales como grupos de sanidad y bienestar social, privados o estatales.

Los "no voluntarios" encuentran la solución más aceptable a sus problemas en sus grupos primarios, toda vez que pertenecen a grupos primarios que están estrechamente vinculados a las necesidades afectivas, sociales y económicas de sus miembros. Careciendo de tales vínculos en sus grupos primarios, los "volun-

tarios" pueden concebir la idea de buscar la solución de sus problemas más allá de sus grupos primarios, en la estructura institucional de la colectividad.

Los programas educativos que hacen hincapié en el interés de la colectividad en su salud y bienestar social no impulsarán al "no voluntario" a buscar un diagnóstico. Es más probable que sea a través de un contacto personal que se decida a hacerlo.

THE MANNER in which people react to signs of an infectious disease on their bodies has been the subject of speculation by doctors and health educators for many years. Common sense "psychological" explanations have frequently been offered to explain quite different reactions to symptoms. For example, fear has been cited as the reason why some people seek immediate medical care. Fear has also been singled out as the reason why some people delay, or avoid altogether, medical diagnosis.

This present study of how people behave when they are sick employed a sociological frame of reference to study the reactions of 500 Mississippi Negroes who had primary and secondary syphilis. Some of these people came to diagnosis of their own accord. Others had to be brought to diagnosis through an elaborate case-finding system. This study undertook to learn what factors influenced the pre-diagnostic behavior of both the volunteer and non-volunteer in this sample. Data were collected by intensive interviews with 500 patients, by consulting medical records on them and by talking to the doctors who examined them.

Definitions: "Volunteers" and "Non-Volunteers"

The appearance of a venereal disease symptom may cause a crisis in the life of the infected individual. Some people apparently follow a "rational" course of action and seek immediate medical care—these people are termed the "volunteers" in this study. Others react in a so-called "irrational" manner and avoid diagnosis of their symptoms—these are called the "non-volunteers" of this study.

Theories Advanced for Non-Volunteering

The seeming irrational behavior of non-volunteers has long puzzled venereal disease workers. This study examined four popular theories which venereal disease control workers were prone to offer as explanations for non-volunteering. All four contain provocative hypotheses and each has some degree of plausibility. However, as each of these theories was put to empirical test in the analysis of these research data, each proved to be inadequate in some respect. To be sure, each provided a satisfactory *ad hoc* explanation for some cases of non-volunteering, but none of these four hypotheses supplied a general theory which could account for the behavior of non-volunteers with vastly different social characteristics, levels of information and previous histories of venereal disease infection.

The four widely accepted explanations for non-volunteering were: (1) the shame or stigma thought to be associated with a venereal disease; (2) the failure or difficulty of perceiving early symptoms of a venereal disease, especially for women; (3) the lack of adequate information about the cause and possible consequences of a venereal disease infection; and (4) the fear of treatment and/or a general distrust of doctors and treatment centers. All four of these possible explanations for non-volunteering were subjected to extensive analysis in this study and each was found to have certain shortcomings, although each had some measure of bearing on the pre-diagnostic behavior of persons with infectious syphilis.

Comparison of Behavior Pattern of Volunteers and Non-Volunteers

In the process of analyzing these data, extensive comparisons were carried out between the volunteers and the non-volunteers in this sample. These comparisons provided an inventory of characteristics and attitudes in terms of which volunteers and non-volunteers differed significantly, and in this manner it was possible to construct profiles of those two types of reactions to infectious syphilis.

The most striking fact from this further analysis was the very different orientation adopted by volunteers and non-volunteers with respect to their customary manner of solving personal problems—both medical and non-medical. When faced with difficult problems, non-volunteers looked to their families or to persons within their primary social groups for help. Volunteers more often neglected these sources of advice and turned instead to "outside" community agencies for help.

Non-volunteers tended to view with distrust, suspicion, and even open hostility the attempts of individuals or groups outside their family

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or friendship circle to provide answers to their personal problems, including their venereal disease infection. Apparently they had found that, even when their families and primary groups were unable to solve a problem for them, the primary groups at least provided solace and psychological support so that the problem was easier to bear and live with. The primary group provided non-volunteers with a quick and accessible way of solving their personal problems. If the primary group of the non-volunteer could not solve his problem (medical or otherwise), he tended to believe that such problems were beyond solution and had to be passively accepted or explained away in terms of a religious or magical cause; i.e., punishment for sinning or the result of being hoodooed by a jealous lover or spouse.

Degree of Group Cohesion as a Factor in Inhibiting or Facilitating Volunteering

These findings on how an individual's group membership influenced his reaction to his syphilitic infection are reminiscent of the findings obtained by Durkheim in his study of suicide. Durkheim, and a host of students who have followed his path, have centered their attention on the way in which the level of cohesion within a social group determines the manner in which a member of the group interprets his life problems. Thus, in his classic study of suicide, Durkheim, proposes that differentials in suicide rate are a function of the level of social cohesion within various social groups. Highly cohesive groups characteristically have a lower rate of suicide than groups with little social cohesion. Thus, the suicide rate is construed as a function of the unrelieved anxieties of individuals in a group, and, the higher the level of social cohesion in a group, the greater the degree of psychic support available to group members when they are subjected to acute stresses and anxieties.

It is suggested here that the concept of social cohesion as developed by Durkheim and refined in the writing of Merton, has application to the present study of volunteering and non-volunteering among syphilitic patients. An immediate and considerable advantage accrues from a reformulation of these data in terms of the concept of social cohesion. The terms volunteer and non-volunteer take on a more precise meaning. Non-volunteers tend to manifest a withdrawal syndrome when faced with personal problems. This behavior is in contrast to the problem solving orientation of volunteers, and thus the concept of social cohesion helps us to see that both these types of seemingly different behavior result from a single underlying process. Non-volunteers find in their primary groups the most acceptable solution to personal problems because these groups offer deep and rich affectual, social, and economic rewards to their members. Volunteers, on the other hand, lacking such strong and sure ties within a primary group, more readily entertain the idea of looking beyond these groups, and they more often find a solution to personal problems within the institutional structure of their communities.

This hypothesis on the role of social cohesion in the volunteering or non-volunteering of syphilitic individuals holds further interest for sociological theory, for it brings out the fact not considered in Durkheim's classic study—that a high degree of group cohesion may be functional in one social setting and dysfunctional in another. With respect to suicide, for example, a high level of social cohesion serves a positive social function by militating against high rates of suicide. In the present case, a high level of social cohesion is dysfunctional from the standpoint of the community at large, for it lessens the probability that persons will seek professional diagnosis of their infectious syphilis, thereby posing a threat to the health of the entire community.

For the volunteers, commitment to the norms of the larger community was a significant factor in contributing to their decision to seek diagnosis for their venereal symptoms from public clinics or from a private physician. Instead of trying to solve their health problems within the confines of their primary groups, they followed the problem-solving routine prescribed by the larger community in which they lived.

It is important to stress, however, that this paper does not contend that these differences in group affiliation *alone* account for volunteering or non-volunteering among infected persons. Rather, it suggests that the level of group cohesiveness plays a considerable, and heretofore neglected, role in inhibiting or facilitating voluntary submission of syphilitically infected persons for medical diagnosis and that it ought to be taken into consideration along with the more classic explanations of the reasons why people seek diagnosis for their infections.

The concept of social cohesion also helps clarify certain other research findings which otherwise might be difficult to understand. For example, it helped explain the fact that

women in this sample volunteered in appreciably smaller proportion than did men. In the social milieu of rural Mississippi, women are central figures in many of the strongest primary groups in the Negro community. In their role of mother or mother-surrogate, they personify the primary group which tries to care for all the needs of its members. The likelihood of their looking to the outside world for help is less than for the Negro male.

The concept of social cohesion also helps to account for the varying intervals elapsing between the time individuals in this sample first noticed a venereal disease symptom and the time when they sought diagnosis. Comparison of the characteristics of volunteers who reported quickly for diagnosis with the characteristics of volunteers taking a long time to reach medical care, showed that the "delaying volunteers" came from more cohesive primary groups. In other words, social cohesion operates in much the same way among volunteers as among non-volunteers—it slows down or militates against their seeking medical diagnosis. A considerable period of delay before reaching diagnosis was most marked among volunteers who sought the advice of their families and relatives about a venereal symptom and among those who frequently experimented with a home remedy before seeking competent medical care.

Finally, the concept of social cohesion allowed a better understanding of the frequent failure of programs of mass blood testing and intensive venereal disease education. Such programs make use of all the available media in a community to carry messages about the venereal diseases. Their messages typically exhort infected persons to seek diagnosis. But, by the very act of being identified with the formal institutions and the local symbols of authority in the community, such intensive educational programs may often alienate the very people they want most to reach—the people with strong allegiances to their primary groups.

Appeals to the public to volunteer for diagnosis, couched in terms of the community's stake in his health, are likely to be ignored by individuals with strong ties to their primary group. They identify themselves and their interests with those of their immediate family and social groups. Such campaigns may even be interpreted by members of strong primary groups as a mobilization of the forces of the community in an effort to intrude upon the domain properly belonging to the family or primary group. Data from this study indicate that the non-volunteer will not be appreciably motivated to seek diagnosis of his venereal disease infection by intensive educational programs which stress the community's interest in his health and welfare. Instead, the non-volunteer is more likely to be persuaded to seek diagnosis by a person-to-person, missionary approach, in which one member of his social group receives successful treatment and is encouraged to return to his friends and family and report this experience to them.

Effect of Attitudes of Public Health Workers on V.D. Control Programs

This research project was primarily oriented to a study of the different ways people reacted to a problem situation—a venereal disease symptom, a contact interview, or the treatment process. However, data collected in this study also indicated that the personality and attitude of public health workers in the field of venereal disease control can influence the success of these programs.

An interesting and unanticipated documentation of this fact is to be found in a study of intensive venereal disease education programs as carried out in a number of counties in Mississippi. Although the expressed purpose of these educational campaigns, namely, an increase in information about the venereal diseases among members of the syphilitic population, and a greater readiness on their part to volunteer when they acquired an infection was not often achieved, these intensive education campaigns did produce a useful byproduct. Counties in which mass blood testing and intensive venereal disease educational programs were conducted reported a larger number of new cases of syphilis in the months following these surveys than they had for any comparable reporting period prior to the time these surveys were conducted. In one county, more than twice as many new cases of syphilis were reported each month for as long as 16 months after the State Board of Health's survey team had visited it. Why were more new cases of syphilis reported by these particular county health departments?

There are sound reasons for believing that much of the new syphilis found in such areas resulted not so much from increased knowledge about this disease as from the more vigorous efforts on the part of personnel in the local county health department to locate new pools of infection which they had heretofore ne-

glected. From the direct comments of these workers, as well as from the observations and reports of their superiors, it was clear that many of these workers had previously taken a rather apathetic and detached view of their jobs. They sometimes felt that the job of eradicating syphilis was insurmountable. Coupled with these feelings of discouragement on their part was a belief that sometimes higher administrative authorities in the State Board of Health had no first hand knowledge and interest in their achievements. Most important of all, many workers in county health departments felt that their job was little understood and seldom appreciated by their fellow citizens within their own neighborhood and home communities.

Whatever the cause or causes which led personnel in county health departments to take a dim view of their venereal disease control achievements, this feeling generally evaporated when the State Board of Health's survey team moved into their county. They were made aware of the importance of their work in relation to the overall venereal disease control activities in their State. They were given concrete evidence that the State Board of Health and their superiors were personally interested in their work. Moreover, during the course of the intensive educational campaign conducted in their county, the staff of the county health department had their work brought to the attention of neighbors and fellow citizens, often for the first time. And, of course, these intensive case finding programs also served to bring to the staff of local health departments up-to-date information and techniques in venereal disease case finding and patient education.

Students in the field of industrial sociology have compiled a wealth of evidence showing that workers wish to feel that the job which they perform is important and that it is respected in the eyes of their friends and associates, and that good work on their part is recognized and rewarded by their superiors. Every employee wants to believe that he has a genuine contribution to make toward the achievement of some work goal, whether it be the construction of a product on an assembly line or the reduction of the incidence of syphilis in a specific geographic area. Findings from this present study of venereal disease control in Mississippi emphasize that these factors, which have been shown to influence employee morale in factories and mills, apply as well to public health personnel.

Addendum

Address

THE HONORABLE JOHN E. FOGARTY

ABSTRACT

The Appropriations Subcommittee on Health of the House of Representatives has taken special note of the V.D. problem both because of the recent increase in the rate of incidence and because of the possibility of eventual eradication of the diseases.

All can learn from one another and benefit from international cooperation in the field of health.

Fundamental aspects of V.D. control are case finding, treatment, and follow-up.

It is very important that private doctors and laboratories notify the appropriate health authorities of every positive V.D. test result.

Complete eradication of syphilis is a realistic objective.

V.D. is but one of the public health problems facing the U.S.; polio and TB are examples of others. It is estimated that 36 million Americans today are or have been infected with TB.

Some 20 million chronically ill or disabled people in the U.S. along with 17 million people 65 years old, represent a vast field of opportunity for the health services.

"Let us not rest until we have made our people as eager to conquer disease as we are to conquer space."

SOMMAIRE

Le Sous-comité des subventions pour la santé publique à la Chambre des Représentants des E.U. a particulièrement pris note du problème des maladies vénériennes, en raison à la fois de l'accroissement récent du taux d'incidence et de la possibilité de l'éradication éventuelle de ces maladies.

Tous peuvent apprendre du nouveau les uns des autres et profiter de la collaboration internationale dans le domaine de la santé.

Les aspects fondamentaux du contrôle des maladies vénériennes sont le dépistage des cas, le traitement, et l'observation périodique par la suite.

Il est très important que les médecins et les laboratoires privés communiquent aux autorités sanitaires compétentes tous les résultats positifs acquis dans les examens vénériens.

L'éradication totale de la syphilis est un objectif réaliste.

Les maladies vénériennes représentent un parmi plusieurs problèmes de santé publique auxquels font face les E.U.; la polio et la tuberculose en sont d'autres. On estime à 36 millions le nombre d'Américains actuellement ou autrefois atteints de la tuberculose.

Quelques 20 millions de malades et d'invalides chroniques aux E.U. auxquels s'ajoutent 17 millions de personnes agées d'au moins 65 ans, représentent un vaste ensemble d'occasions offertes à l'initiative des services de santé.

"Ne nous reposons pas avant que nous n'ayions inspiré à notre peuple une ardeur à vaincre la maladie égale à la notre à conquérir l'espace."

RESUMEN

El Subcomité de Apropiaciones de Salud de la Cámara de Representantes ha tomado nota especial del problema de la enfermedad venérea debido al reciente aumento en el grado de incidencia y debido a la posibilidad de la eventual erradicación de la enfermedad.

Unos pueden aprender de otros y beneficiarse de la cooperación internacional en el campo de la salud.

Los aspectos fundamentales del control de la enfermedad venérea son localización de casos, tratamiento y observación de los mismos.

Es muy importante que los médicos y laboratorios particulares notifiquen a las autoridades de salud apropiadas sobre cada resultado positivo de todo examen de enfermedad venérea.

La erradicación total de sífilis es un objetivo realístico.

La enfermedad venérea es sólo uno de los problemas de salud pública con que se enfrentan los Estados Unidos; polio y tuberculosis son ejemplos de otros. Se calcula que 36 millones de Américanos hoy día están o han sido infectados con TB.

Algunos 20 millones de enfermos o incapacitados crónicos en los Estados Unidos, junto con 17 millones de personas de 65 años de edad, representan un campo extenso de oportunidad para servicios de salud.

"No deseansemos hasta lograr que nuestros ciudadanos estén tan ávidos de conquistar las enfermedades como lo estamos nosotros de conquistar el espacio."

I VERY MUCH appreciate the opportunity to join with you this week as you have this international discussion of the problem of controlling the venereal diseases.

This problem has a special interest for me because as a lay participant working for more than a decade with you health professionals to improve the health of all people, I am concerned when we find ourselves retrogressing in dealing with any disease.

Also, because I feel so strongly about our efforts to improve the health of people I have always had a special quickening when I hear the

Mr. Fogarty is Representative for the State of Rhode Island, Congress of the United States, Washington, D.C. *This address was given at the International Banquet, World Forum on Syphilis and Other Treponematoses, September 6, 1962.*

word "eradication." The human race has for so many centuries been fighting just to control disease that it is inspiring when suddenly it appears possible that we can eliminate any disease that has plagued us so long.

Congressional Action on V.D.

These are two of the primary reasons why the House of Representatives Appropriations subcommittee on health—of which I have the honor to be chairman—took special note of the venereal disease problem. Our report to the Congress last year took the stand that this was a disease that ought to be eliminated in the United States. We asked the Public Health Service to give the Congress a special report in time for the hearings this year and to make recommendations for an effective program in this area. You know the result. The Surgeon General appointed a committee of outstanding leaders to make a study and their excellent report has been submitted and discussed by you and others.

I understand that the Task Force report has been circulated to every State in the Union and to many people interested in venereal disease control. In my opinion, its content is so important it should reach every city, county, and district health department. I hope that each of you health and welfare specialists will make it your business to see that the American people, in your own communities and throughout the Nation as a whole, know this story.

I would like to continue on the general subject of eradication for a few minutes—but first I would like to add my welcome to the many that have already been extended to our visitors to this meeting from other nations.

As the representative of the United States Congress may I say that we are delighted to have you in this country and we hope you will find your visit beneficial. I know something about the personal value of these meetings since I have had the honor of being a delegate from the United States to four assemblies of the World Health Organization during the past few years. I am a firm believer in the theory that all of us can learn from each other and benefit from international cooperation in the field of health. I know about the progress many of your countries have made in the venereal diseases and treponematoses. Indeed, I have the impression that some of you have made greater strides than the United States in the field of eradication—for which you certainly have our congratulations.

Eradication of V.D.

When we consider the possibility of eradication of venereal disease in the United States, we start on familiar ground: case finding, treatment, and follow-up are fundamental aspects of control. In my own State, the health department got busy last autumn and sent questionnaires to all private physicians. As a result, they found 18 cases of infectious syphilis being treated during a three-month period when none had been reported. So we learned from that that we had to make more of an effort to get the private practitioners alerted to the problem. Representatives of our health department began to visit all our physicians. In four weeks they had made a personal contact with 1,094 of 1,156 registered physicians. Every one of those doctors responded with complete cooperation. They are working hand in hand with the health department.

I am very proud of this accomplishment in my own State. And it seems to me that if this kind of cooperation could be established in every State, we ought to be able to produce, for epidemiological follow-up, 100% of the cases being treated by private physicians.

We also know how important it is that all laboratories, public or private, including those in hospitals, should notify the appropriate health authorities of every positive finding in tests for syphilis. North Carolina has a requirement which makes this reporting obligatory. Since it was put in effect, State health officials visited all 234 labs in North Carolina. The result was that they obtained reports on 64 cases of early syphilis which might otherwise have been missed. I believe Pennsylvania has a similar program in operation.

Eradication of Other Diseases

Programs like these give us hope that complete eradication of syphilis is a realistic objective for health workers. When I get started on the subject of eradication other diseases quickly come to mind. There are plenty of them. Venereal disease isn't the only one by a long shot. Take polio, for instance. We are close to eradication. We could eliminate polio in three to five years if we had an all out program of immunization. A vaccination survey in 1961 showed that as yet 38% of the population under 60 years of age—more than 59 million persons—had not received any vaccine. Another 46% had received fewer than the recommended number of shots. A substantial number of the unprotected group were children under 5 years of age. Less

than half of these children have been vaccinated—and they are more susceptible than anybody.

What is the matter with us? What is the matter with laymen like me, or health experts like you people? Why can't we somehow convince our friends and neighbors that it is part of our citizen responsibility to take advantage of measures available to us for safeguarding the lives of our loved ones and our own lives as well? It would certainly seem simple to sell the idea that all we want to do is use the health knowledge we already have on hand.

Some people have said they were waiting for the oral vaccine. It will be interesting to see how many start and follow through with a prescribed course of treatment, now that the Sabin vaccine is available.

Tuberculosis is another disease that can and should be eradicated. Fred Soper, a former Public Health Service officer, whom many of you know, told a group of Wisconsin tuberculosis and health representatives that eradication gives you a stake in the welfare of the entire human race. He said, "If you want eradication in Wisconsin, you have to have in Illinois, in Minnesota, an ever expanding periphery. There's no law of diminishing returns and no indestructibility of a biological entity."

You know as well as I, of course, that the mathematics of eradication is simple. What can be done in one square meter can be done in two, then in four. By geometrical progression the world can be covered. As localized epidemics are the mechanism of spread, local control can mean national control.

It is estimated that some 36 million people in the U.S. today are or have been infected with tuberculosis. It's even more important to me that 142 million have not been infected. Roughly 6 million of the uninfected live in areas of high tuberculosis incidence.

If we are going to eradicate tuberculosis, let's not just think about those who are already benefitting by chemotherapy or by surgery. Let's think about the individual living in a T.B. environment and see what we can do to prevent him from picking up a bug from his family or neighbors.

A couple of things are obvious. We can certainly perfect our community machinery to insure that a discharged or treated patient continues to follow his doctor's orders—take his pills, go for his periodic checkup. Let's eliminate that fellow forever as a source of spread. We also need more public health nursing follow-up to see that the patient on drug therapy at home is conscientious with his medication. If he interrupts his treatment, he may not recover but may become chronically ill, with tubercle bacilli that resist our most modern and most effective weapons. Then he's a real problem and a real expense, to himself, his family, and his community.

We need more research to prove the lasting values of isoniazid as a prophylactic. But most of all, we need to whip up some enthusiasm among all levels of citizens. Somehow you public health leaders have got to put across the responsibility of the community to the infected individual as well as the responsibility of the infected individual to uninfected persons.

This is as true of venereal disease as it is of tuberculosis.

Need for Action Programs

Let's not just talk about a bigger and better "health education program." That's not what I mean at all. I'm talking about action programs. I'm talking about you people here, rolling up your sleeves when you get home, and beating out an eradication program that you can lay before the citizens themselves. Not just boards of directors, not just finance committees, not just professional societies and fraternal groups. Tell your story to people—the people whose lives may be jeopardized or preserved according to how much of themselves they are willing to offer in the cause of eradication.

Sometimes I think we forget the help we have available to us to get some of these jobs done. The Community Health Services and Facilities Act which was passed last year is already making grants to help communities find out what is wrong with their health services and what to do to improve them. Dr. Terry spoke of this earlier in the week.

But let's not stop with what we already have. Why, for example, can't we really have a program with teeth in it to bite into the myriad problems of chronic illness, or the degenerative diseases of the aging? Can we really say that across the Nation as a whole we are making more than a small thumb print in the vast field of rehabilitation?

Last year the Congress added $300,000 to the nursing budget of the Public Health Service to stimulate training of registered nurses in restorative techniques. About $220,000 of that was used to set up short term training courses in rehabilitation nursing. There was enough money to cover three installations. One of these was

Rancho Los Amigos in Los Angeles, one of the outstanding chronic disease hospitals in the United States. They are instructing public health nurses from the entire West Coast area in this important skill, not just Californians. The University of Miami is doing the same thing for its area, as is also Boston University.

BUT—and this a big *but*, only 500 nurses have benefited so far. I have consistently fought to get more nurses qualified in rehabilitation. But, when I think of the interest and needs in my part of the country alone, I know full well that we are only scratching the surface of this acute problem. I hazard the guess that if there were enough teachers and classrooms, Boston University could handle as many as 500 nurse trainees itself in short term restorative nurse training courses spread through the year.

There are some 20 million people chronically ill or disabled in the U.S. today—almost 10% of our population. About 5 million are so severely handicapped they can't get around. We also have 17 million people over 65 years old. By 1980 there will be 24 million.

Here is a vast field of opportunity for the health professions. These people need special treatment, special care. They cannot be handled like other patients. They need special understanding as well as special therapy. They need medical management geared to their particular problems—and aimed at restoring lost usefulness, or preventing total disability, or reestablishing impaired function.

If we consider that adequate knowledge and adequate care *might* be able to rescue some of those 20 million-plus people from hopelessness and uselessness—what a challenge! What a source of satisfaction to doctors, nurses, and other health specialists! Shouldn't we be trying to recruit into our medical and nursing schools young people who can visualize what this huge job of salvaging human resources could mean to us as a Nation?

Why aren't we teaching the problems of long term illness, the ailments of our aging citizens as specialties in our medical and nursing schools? Why don't we make this vast patient-care area sound as fascinating as surgery, or intensive care, or obstetrics? Why are we so backward in training physical therapists and physiatrists?

Believe it or not. There are only 400 trained physiatrists practicing in the U.S. today—though every one of our chronically ill or aged could undoubtedly benefit by physical medicine services. Only about half of our medical schools have medical rehabilitation training programs. These schools devote 14 hours to rehabilitation—in the total medical school career of the student—as against 400 hours in obstetrics. How can we possibly recruit medical students for physical medicine, or care of the aged, when our schools do not offer strong and vibrant programs in medical rehabilitation?

Why can't we get more physical therapy treatments into the homes of those who need them? The simple fact is, there aren't enough therapists. Only two medical centers have full fledged research and teaching programs to train the health disciplines in medical rehabilitation. I am told we need at least 10.

Let's train nurses in our public health agencies to perform simple restorative services as part of community home care programs. I was shocked to find that the Visiting Nurse Association of the District of Columbia is able to employ on its staff only two physical therapists. The official health agency physical therapy services of necessity are only for the indigent. This isn't meeting the need or facing the problem at all.

Conclusion

None of these facts I have stated is new to any of us. Neither is the fact, I believe, that we all realize that the time is here for attack. The people are eager for more and better health services, the funds can be available and it is up to us to get the attack under way.

It is within the power of every man and woman in this room to go home and give the kind of statesmanlike leadership we need. I feel confident that you will. I am fully confident that each of you has the capacity to take to your own home towns, in this country and around the world the incentive, the spirit of courage, and the convinced conscience which will enable men to carve out the kind of total health service that humanity today deserves and needs.

America has massive energies to devote to space exploration, to industrial expansion, to urban development. Let us not rest until we have made our people as eager to conquer disease as we are to conquer space. Let us make the eradication of health hazards as much a part of the American way of life as our high standard of living, our free enterprise, and our civil liberties. None of these values can survive without individual AND national good health.

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